Study of Single Family Property Management Systems and Data

COST/BENEFIT ANALYSIS

June 16, 2003

Office of Housing

Federal Housing Administration

Department of Housing and Urban Development

COST/BENEFIT ANALYSIS

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1.0 GENERAL INFORMATION

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The Federal Housing Administration's (FHA's) Office of Insured Single Family Housing administers a property management program and oversees the acquisition, marketing, and disposition of approximately 60,000 properties per year. Single Family Housing maintains the Single Family Acquired Asset Management System (SAMS) and other property management support systems to assist with program operations, such as case management, financial management, contractor monitoring, business evaluation, and business partner management. SAMS and the other systems must fully support these business functions in order for FHA to effectively and efficiently manage its program.

Since the original implementation of SAMS, Single Family Housing has changed the property management program and its business model. In an effort to streamline operations, FHA began contracting out the Real Estate Owned (REO) functions in 1997. Consequently, Single Family Housing's role shifted to oversight and monitoring rather than performing the day-to-day REO activities. Over time, FHA adapted SAMS and developed supplemental systems to support both the property management and contractor oversight functions. While FHA has made extensive modifications to SAMS and developed other support systems, numerous challenges remain with its property management operations within the current systems environment. For example, maintenance costs remain excessively high. Furthermore, FHA has received criticisms from the General Accounting Office (GAO) about its single-family property management operations, systems, and monitoring performance in various studies. As a result, GAO has placed Single Family on its high-risk list since 1994. In its financial statements, FHA also has received material weaknesses and reportable conditions related to single-family systems, including:

- FHA's systems environment provides insufficient support to its business processes.
- FHA lacks control over budget execution and funds.
- FHA performs inadequate monitoring over its Single Family property inventory.

1.1 Purpose

Single Family Housing seeks to increase SAMS' functionality or implement a new system. FHA needs to assess its long-term business needs and the capacity of its current systems prior to any further systems development efforts. The *Cost/Benefit Analysis* provides cost and benefit information for each of the options to improve Single Family's property disposition systems. This document lists the assumptions, constraints, and methodology used to develop the cost estimates. In addition, this document compares the cost information to provide the net present value (NPV), benefit/cost ratio, and payback period for each option.

1.2 Scope

This project provides FHA with a blueprint for property management and helps guide FHA towards an improved way of conducting its business. FHA performed an in-depth review of the Single Family systems supporting the property management function, including asset management, business participant management, business evaluation, and financial management. Based on this analysis, we presented an alternative solution to its current systems environment. FHA conducted this study in five primary phases:

- Phase I – Identify major business and system needs.
- Phase II – Identify major deficiencies in the current systems.
- Phase III – Develop short- and long-term options.
- Phase IV – Present findings and obtain stakeholder buy-in.
- Phase V – Develop Initiate phase documents, including the *Project Plan, Needs Assessment, Feasibility Study, Risk Analysis, Cost-Benefit Analysis, System Security Plan,* and *Systems Decision Paper.*

1.3 System Overview

While the Department of Housing and Urban Development's (HUD) Information Technology (IT) division provides technical assistance, HUD's Office of Housing is responsible for the identification of business process and reporting needs of its systems. For single-family mortgage insurance programs, the Office of Single Family Programs and the Office of the Comptroller share responsibility for SAMS and other single-family systems.

SAMS is a mixed program and financial management system that accounts for the sale of over 60,000 properties per year valued at over $5 billion dollars with related expenses totaling nearly $1 billion. SAMS supports HUD staff at Headquarters, Homeownership Centers (HOCs), and Management and Marketing (M&M) contractors with tracking single-family properties from acquisition through resale. In addition to collecting data related to the management, marketing, and disposition of properties, SAMS maintains financial records in compliance with the Federal Credit Reform Act and processes disbursements to M&M contractors, vendors, taxing authorities, and homeowners' associations.

SAMS is hosted on HUD's IBM-compatible mainframe and is connected to HUD's network, HINET, through a COMTEN front-end processor. Software used in SAMS includes: COBOL, DB2, CICS, EXTRA, JCL, NOMAD, and the Configuration Management tool, Endevor. SAMS development tools include Electronic Data System's (EDS) proprietary case tool – INCASE.

The following table provides the requisite system information.

Responsible Organization	Federal Housing Administration – Office of Housing
System Name or Title	Single Family Acquired Asset Management System (SAMS)
System Code	A80S
Project Cost Accounting Sub-system (PCAS) Number	To Be Determined
System Category	Major application
Operational Status	Operational
Users	FHA and M&M contractors

System Input	Mortgagee data, transmittal check data, property acquisition data, claim data, lockbox and Fedwire collection data, check data, valid property case data, property maintenance data, property acquisitions
System Output	New acquisitions, inventory status and sales data, property listing, property title data, SAMS general ledger balances, disbursement data, and sales related data.
Interaction With Other Systems	The SAMS environment is composed of numerous interconnected and stand alone systems. SAMS shares data with the following systems through manual or automated interfaces: Single Family Insurance System (SFIS), Computerized Homes Underwriting Management System (CHUMS), Institutional Master File (IMF), A80N, Single Family Insurance Claims Subsystem, Lockbox, File Transfer Protocol (FTP) Server, HUD Web, Kiosks, Single Family Data Warehouse, TEAM, Fedwire system (Cashlink), Cash Control Accounting Reporting System (CCARS), ECS system (Electronic Funds Transfer (EFT) disbursements), and the FHA Subsidiary Ledger

1.4 Project References

FHA used the following reference materials to prepare the Cost/Benefit Analysis.

Document	Date
EDS, HUD/SAMS Release Summary	No date noted
Information Technology Reform Act of 1996	No date noted
IBM Endowment for the Business of Government, *IT Outsourcing: A Primer for Public Managers*, Chen, Perry	February 2003
Joint Financial Management Improvement Program, *Property Management System Requirements*	October 2002
Management & Marketing Service Contract Terms and Conditions	No date noted
National Institute of Standards and Technology, *Special Publication 800-12, An Introduction to Computer Security: The NIST Handbook*	October 1995
National Institute of Standards and Technology, *Special Publication 800-14, Generally Accepted Principles and Practices for Securing Information Technology Systems*	September 1996

Document	Date
National Institute of Standards and Technology, *Special Publication 800-16, Information Technology Security Training Requirements: A Role- and Performance-Based Model*	April 1998
National Institute of Standards and Technology, *Special Publication 800-18, Guide for Developing Security Plans for Information Technology Systems*	December 1998
National Institute of Standards and Technology, *Special Publication 800-26, Security Self-Assessment Guide for Information Technology Systems*	November 2001
National Institute of Standards and Technology, *Special Publication 800-40, Procedures for Handling Security Patches*	August 2002
National Institute of Standards and Technology, *Special Publication 800-44, Guidelines on Securing Public Web Servers*	September 2002
Office of Management and Budget Circular Number A-130, *Management of Federal Information Resources, Appendix III*	November 2000
United States Department of Housing and Urban Development, *Business Process Reengineering*	March 1997
United States Department of Housing and Urban Development, *FHA Audit of Financial Statements Fiscal Years 2002 and 2001*	January 2003
United States Department of Housing and Urban Development, *Final Draft SAMS User's Guide*	August 2002
United States Department of Housing and Urban Development, *Management Structure Design and Specifications in the M&M Contract Environment For Single Family Property Disposition*	January 1999
United States Department of Housing and Urban Development, *M&M Contractor Compliance Review, Risk-Based Targeting Model Web Tool Training*	August 2002
United States Department of Housing and Urban Development, *Office of the Single Family Housing Target Architecture Development*	September 2002
United States Department of Housing and Urban Development, *Processing Procedures and Internal Controls for M&M Contractors*	No date noted

Document	Date
United States Department of Housing and Urban Development, *SAMS Reports Training Manual*	May 2002
United States Department of Housing and Urban Development, *Single Family Housing Target Architecture*	August 2002
United States General Accounting Office, *Financial Management: Strategies to Address Improper Payments at HUD, Education, and Other Federal Agencies*	October 2002
United States General Accounting Office, *Information Technology Leading Commercial Practices for Outsourcing of Services*	November 2001
United States General Accounting Office, Loan Origination and Foreclosed Property Management Processes	November 1999
United States General Accounting Office, *Single Family Housing: Current Information Systems Do Not Fully Support the Business Processes at HUD's Homeownership Centers*	October 2001
United States General Accounting Office, *Single Family Housing: Improvements Needed in HUD's Oversight of the Property Sale Process*	April 2002
United States General Accounting Office, *Single Family Housing: Stronger Measures Needed to Encourage Better Performance by Management and Marketing Contractors*	May 2002

1.5 Acronyms and Abbreviations

The following table lists the acronyms and abbreviations used in this document.

Acronym/Abbreviation	Definition
ADP	Automatic Data Processing
ASP	Application Service Provider
BPR	Business Process Redesign
CCARS	Cash Control Accounting Reporting System
CHUMS	Computerized Homes Underwriting System

Acronym/Abbreviation	Definition
CO	Contracting Officer
COTS	Commercial-off-the-Shelf
CPI	Consumer Price Index
EDS	Electronic Data Systems
EFT	Electronic Funds Transfer
FHA	Federal Housing Administration
FTP	File Transfer Protocol
FY	Fiscal Year
GAO	General Accounting Office
GTM	Government Technical Monitor
GTR	Government Technical Representative
GUI	Graphical User Interface
HUD	U.S. Department of Housing and Urban Development
IMF	Institutional Master File
IT	Information Technology
ITAS	Inspection Tracking and Assignment System
IV&V	Independent Verification and Validation
M&M	Management and Marketing
NPV	Net Present Value
OMB	Office of Management and Budget
OCFO	Office of the Chief Financial Officer
OCIO	Office of the Chief Information Officer

Acronym/Abbreviation	Definition
OCPO	Office of the Chief Procurement Officer
OIG	Office of Inspector General
OIT	Office of Information Technology
PCAS	Project Cost Accounting Sub-System
RBTM	Risk Based Targeting Model
REO	Real Estate Owned
SAMS	Single Family Acquired Asset Management System
SFIS	Single Family Insurance System
SLA	Service Level Agreement
SPI	Special Property Inspector

1.6 Points of Contact

The following sections provide a listing of contacts for additional information regarding this document and the overall project, as well as a listing of departmental organizations and their contacts that provide support and guidance related to this project.

1.6.1 Information

This table provides a list of organizational points of contact that may be needed by the document user for informational and troubleshooting purposes. All contacts are located at 451 Seventh Street, SW, Washington, DC, 20410.

Type of Contact	Contact Name	Department	Telephone	Email/Address

Type of Contact	Contact Name	Department	Telephone	Email/Address

1.6.2 Coordination

The following table provides a list of organizations that require coordination between the project and its specific support function.

Type of Contact	Contact Name	Department	Telephone	Email/Address

2.0 MANAGEMENT SUMMARY

2.0 MANAGEMENT SUMMARY

This document compares the cost and benefits for each of the five options to improve Single Family's property disposition systems. The cost analysis is intended to provide conservative order-of-magnitude estimates to facilitate comparison across the various options and to provide FHA management with relative cost estimates, which along with the qualitative analyses, will assist with strategic business decision-making. Therefore, the cost figures reflected in this document may not necessarily correspond to cost figures in the OMB 300-B. This section contains the assumptions, constraints, and methodology used to conduct this analysis.

2.1 Assumptions and Constraints

The cost/benefit analysis was conducted with cost information gathered from program staff, IT staff, software vendors, industry experts, and leveraging internal IBM best-practices knowledge bases. This section contains general assumptions used to estimate costs across all of the options. Detailed assumptions and constraints specific to each individual option are documented in section 4. Actual costs to be incurred for each option may vary significantly based upon the validity of the assumptions documented. The general assumptions include:

- A 2.32 percent inflation rate for recurring costs was used based on the average percentage change in the Consumer Price Index (CPI) for 1998-2002 period. (Source: Department of Labor, Bureau of Labor Statistics, ftp://ftp.bls.gov/pub/special.requests/cpi/cpiai.txt)
- A 5.05 percent discount rate was used based on average annual 5-year duration Treasury security rate for the 1998-2002 period. (Source: Federal Reserve, http://www.federalreserve.gov/releases/h15/data/a/tcm5y.txt)
- All options will begin system implementation beginning fiscal year (FY) 2004 and will complete implementation within one year. For all options that replace SAMS, it is assumed that SAMS will be phased out within one year.
- In instances where no reliable cost data could be obtained, costs were estimated based on best available information. Estimates were developed leveraging IBM's MethodBLUE system estimating tools and methodology. MethodBLUE is a compilation of IBM's methodologies, best practices, deliverable repositories, and management guidelines.

2.2 Methodology

As part of the analysis, FHA estimated costs for the following five system options:

- **Status Quo** – FHA continues to use its current SAMS application, with the funding level estimates based upon expenditures as provided by FHA for FY 2003. Unlike the other options, FHA provides cost estimates for the status quo for SAMS rather than the costs for the proposed enhancements to SAMS solution. This approach follows standard cost-benefit analysis practice of measuring options against the status quo.
- **Customized solution** – FHA builds a new custom-developed system to replace SAMS.
- **Commercial-off-the-shelf (COTS) solution** – FHA purchases a COTS package that requires customization to meet its needs.

- **Application Service Provider (ASP) solution** – FHA outsources the system implementation and hosting of a property management system to an Application Services Provider.
- **Data reporting solution** – FHA no longer provides a property management system for the M&M contractors. The M&M contractors obtain their own system and interface with FHA to provide and receive data in specified formats and within specified timeframes.

A more detailed description for each solution is provided in section 3.3 Alternatives.

The cost elements for each option are grouped into three major categories: initial implementation costs (i.e., start-up costs), ongoing operational costs (i.e., recurring costs), and phase-out costs (i.e., cost to shut down legacy application). The estimates for each scenario were based on information from interviews with FHA personnel, software vendors, service providers, industry experts, and IBM's internal best-practices knowledge bases.

2.3 Evaluation Criteria

The evaluation of the options was conducted in two stages. The first stage evaluated the options according to business and technical needs. The second stage evaluated the costs and benefits for each option. The criteria used for each stage are documented below.

2.3.1 Business and Technical Needs

FHA developed evaluation criteria and subcriteria to provide a means of objectively evaluating each of the options. First, the objectives outlined in the *Business Needs* report were used to assess how well each option meets FHA's unique business requirements. Second, FHA analyzed additional technical factors based on the system needs outlined in the *Business Needs* report.

2.3.1.1 Business Needs

These criteria evaluate how well each option supports the unique requirements of FHA and its contractors according to the objectives outlined in the *Business Needs* report developed in Phase I of this project. In the *Business Needs* report, the business needs are categorized into 13 objectives. The objectives are further organized according to the functions and processes outlined in the Single Family Target Architecture – Loan Insurance, Business Participant Management, Business Evaluation, and Financial Management. The following bullets define the criteria and subcriteria used to assess each option:

- **Loan insurance** – Evaluates how well each option supports FHA's ability to manage and market assets.
- **Business participant management** – Evaluates how well each option supports FHA's ability to monitor business participants, such as M&M contractors, special property inspectors (SPI), file review contractors, non-profit groups, closing agents, and real estate brokers.
- **Business evaluation** – Evaluates how well each option supports FHA's ability to effectively evaluate program performance.

- **Financial management** – Evaluates how well each option supports FHA's ability to effectively manage financial matters, including accounting functions, funds control, payables management, and receivables management.

2.3.1.2 Technical Requirements

The technical criteria evaluate how well each option supports the technical requirements unique to FHA's and HUD's systems environment. The *Business Needs* report developed in Phase I of this project documents FHA's systems needs for property management and assessment. FHA used the system needs and the requirements detailed in the statement of work to develop four criteria to assess each option.

- **Compatibility with technical environment** – Evaluates how well each option supports FHA's and HUD's technical environment. Examples include nationwide implementation, client/server or web-based architecture, and on-line transaction processing.
- **Viability/adaptability/flexibility** – Evaluates the degree to which the option can be tailored to meet the specific needs of an organization.
- **Time constraints and resources** – Evaluates length of time required to implement each option and the availability of support provided by the solution provider during and after the implementation of each option.
- **Support for enterprise-wide solution** – Evaluates how well each option supports Single Family's target architecture, as well as the overall HUD enterprise architecture.

2.3.2 Cost/Benefit Analysis

Cost estimates were used to facilitate comparison across the various options. With the help of the IBM team, FHA surveyed multiple vendors and service providers to develop conservative cost estimates for each option. However, the sample products and services used to develop the cost estimates were not based upon a detailed product evaluation and selection process, as such an analysis is beyond the scope of this study. In addition, these cost estimates are based on a standard federal pricing model and do not reflect any potential negotiated discounts.

2.4 Recommendations

This section documents an applicable subset of recommendations previously developed in the *Alternatives Assessment* document. The recommendations provide the best option to enhance FHA's ability to conduct and evaluate Single Family property management.

2.4.1 Recommendation 1 – Select ASP Solution

FHA management agrees with the conclusion of the *Alternatives Assessment* report that the ASP solution is the best option for its property disposition program. FHA identified products in the market that would place HUD with the best practice and industry leaders in REO. Furthermore, this option received the highest score for meeting FHA's business and technical needs. It also allows for the lowest start-up costs and the fastest implementation.

Since an ASP would host the application outside of FHA's system environment, FHA does not deviate from any current or future HUD enterprise architecture standards. The ASP solution

allows FHA to obtain the required system functionalities for its business model and to resolve long-standing audit issues within one to two years while HUD completes its enterprise architecture model. Furthermore, FHA would also be following the recommendations issued by GAO. In a report published in October 2001, GAO stated, "To address the information system challenges facing HUD's homeownership centers, we recommend that the Secretary of Housing and Urban Development direct the Chief Information Officer and Assistant Secretary for Housing-Federal Housing Commissioner to…Continue delaying any sizable single-family systems acquisition or development until the Department's enterprise architecture is complete." [1] The ASP solution allows FHA to obtain the functionalities of a new system, while HUD continues to develop its enterprise architecture. Once the enterprise architecture is finalized, FHA will be in a position to re-evaluate its property management systems environment.

There are risks associated with partnering with one vendor as the sole source of maintenance and hosting of the system. However, FHA can mitigate these risks by taking the recommended steps:

- **Research and select a mature vendor with extensive industry experience and a solid financial position** – When assessing specific products for procurement, FHA should also carefully scrutinize the vendors. FHA should analyze the history and financial position of potential vendors and communicate with other customers to obtain information on their level of satisfaction with vendor performance. FHA should select a vendor with a strong financial position and a proven record of providing long-term service to its customers.
- **Research and utilize best practices in the area of contract negotiation** – Before finalizing any contract with an ASP, FHA should research examples set by other organizations that elected to use an ASP. FHA should communicate with personnel from those organizations, analyze the terms of those contracts, and decide the proper course of action necessary to protect FHA's interests.
- **Analyze lessons learned from similar IT projects both internal and external to HUD** – FHA should examine lessons learned from the transition of the original SAMS system to the new SAMS system and other similar projects at HUD. For example, the new system should not be developed with proprietary software and should be built on an open architecture. FHA should also communicate with industry partners to learn from the experiences of other organizations that have undergone similar initiatives.

- **Structure the contract to protect FHA in the event the ASP cannot meet the terms of the contract or other foreseeable scenarios** – FHA should take the necessary precautions to maintain rights to the application and data in the event the vendor cannot meet its contractual obligations. FHA should use service level agreements to ensure that the selected vendor fulfills requirements specified during contract negotiation. Service level agreements should be structured to closely align with HUD's performance-based contract initiative to provide HUD with the ability to withhold payments based on poor performance. FHA will be able to effectively mitigate potential risks by applying knowledge gained in researching best practices and lessons learned and by carefully structuring the contract to protect its interests.

[1] GAO, Current Information Systems Do Not Fully Support the Business Processes at HUD's Homeownership Centers. October 2001.

2.4.2 Recommendation 2 – Leverage Functionality of Subsidiary Ledger

As documented in the *Alternatives Assessment* report, the ASP products lacked adequate functionality to meet the financial management business needs. However, FHA plans to have the proposed property management system interface with its Subsidiary Ledger and leverage the functionalities of the new PeopleSoft modules to reduce the possibility of duplicate system functionalities.

Under this scenario, the proposed property management system serves as the operational system and the Subsidiary Ledger serves as the financial system. An interface between the property management system and the Subsidiary Ledger facilitates the exchange of financial information at predetermined events or on predetermined timeframes. Leveraging its workflow functionality, the property management system will feed sufficient financial information to the Subsidiary Ledger. The Subsidiary Ledger will then automatically perform funds control, generate standard general ledger entries, and store the information for each type of transaction. The Subsidiary Ledger will also feed sufficient financial information to the property management system to fulfill Single Family's business needs. This joint system approach:

- Eliminates redundant system functionality.
- Optimizes use of FHA's pre-existing commercial-off-the-shelf package.
- Meets the business needs of different functional areas.
- Takes advantage of best practices and new technologies in the mortgage banking industry.
- Capitalizes on the strong accounting and funds control functionality of the FHA Subsidiary Ledger.
- Allows for a single point of entry – depending on the end-user's business function – on a nationwide level.
- Provides support for financial statement audits and helps to eliminate control weaknesses.
- Complies with FHA Office of the Comptroller's *Vision of Financial Management*.

As outlined in the vision, FHA plans to have the FHA Subsidiary Ledger take over financial management responsibilities for SAMS and many of the other feeder systems.

3.0 DESCRIPTION OF ALTERNATIVES

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This section provides a description of the current property management system, SAMS, as well as descriptions of the five proposed solutions to replace SAMS.

3.1 Current System

SAMS supports headquarters staff, HOC staff, and M&M contractors in tracking Single Family properties from their acquisition by HUD through the steps necessary to resell the properties. SAMS is a mixed program and financial management system that accounts for the sale of over 60,000 properties valued at over $5 billion dollars and related expenses totaling nearly $1 billion per year. In addition to collecting data related to the management, marketing, and disposition of properties, SAMS maintains financial records in compliance with the Federal Credit Reform Act and processes disbursements to M&M contractors, vendors, taxing authorities, and homeowners' associations. The maintenance and operating costs for SAMS in FY 2002 was approximately $6 million.

The system interacts with 17 other systems which includes: Single Family Insurance System (SFIS), Computerized Homes Underwriting Management System (CHUMS), Institutional Master File (IMF), A80N, Single Family Insurance Claims Subsystem, Lockbox, FTP Server, HUD Web, Kiosks, Single Family Data Warehouse, Risk Based Targeting Model (RBTM), Inspection Tracking and Assignment System (ITAS), TEAM, Fedwire system (Cashlink), CCARS, ECS system (EFT disbursements), and the FHA Subsidiary Ledger. The numerous systems that make up the current overall FHA financial management systems environment are both purchased and internally developed legacy applications. These applications are on a multitude of hardware and software platforms. Application enhancement and integration in this environment is inefficient and costly.

SAMS is hosted on HUD's IBM-compatible mainframe and is connected to HUD's network, HINET, through a COMTEN front-end processor. Software used in SAMS includes: COBOL, DB2, CICS, EXTRA, JCL, NOMAD, and the Configuration Management tool, Endevor. SAMS development tools include EDS's proprietary case tool – INCASE.

3.2 Proposed System

In the proposed solution, an ASP will host the property management application on its own servers within its own facilities. The ASP hosts the application and provides full-scale services for implementation, training, and ongoing operational support. The service provider will shoulder the burden of database and programming administration, backup processing, and core hardware acquisition, support, and maintenance. The proposed property management system will support Single Family Housing to operate an effective program and maintain strong management controls. The property management system will provide functionalities for case management, contractor monitoring, business evaluation, and business partner management.

The property management system will interface with the FHA Subsidiary Ledger, which will support financial management activities. The property management system will store operational data, and the Subsidiary Ledger will store the necessary financial data. An interface between the property management system and the Subsidiary Ledger will facilitate the

exchange of financial information at predetermined events or on predetermined timeframes. The Subsidiary Ledger will use the financial information to post journal vouchers, track contract spending, and perform funds control. The Subsidiary Ledger will send funds control approvals/rejections, transmittal check data, lockbox, and Fedwire collection data to the property management system. There is a wide range of interface options available to FHA, and more information will be available as the interface is defined in greater detail.

The proposed system will also receive several types of inputs from other existing HUD systems. The system will receive mortgagee data, property acquisition data, claim data, check data, valid property case data, property maintenance data, and property acquisitions. For outputs, the system will provide data for inventory status and sales data, property listing, property title data, disbursement data, and sales related data. The system will need to generate internal management reports, ad hoc reports, automated emails and letters, and contractor and vendor performance reports.

FHA's Office of Insured Single Family Housing will own the system, which will use state-of-the-art technology and an operational architecture consistent with HUD's existing and planned standard enterprise infrastructure. FHA will work with HUD's OCIO and OIT to provide reasonable assurance of compatibility with existing and future architectural considerations.

3.3 Alternatives

Including the proposed solution in section 3.2, we reviewed five options during the course of the analysis:

- Enhancements to SAMS.
- Customized solution.
- COTS solution.
- ASP solution.
- Data reporting solution.

3.3.1 Enhancements to SAMS

This option evaluates the continued use of SAMS with modifications. In this scenario, SAMS remains the underlying system without changes to its core functionality or technology. However, SAMS continues to receive scheduled updates, such as the rent receivable module and the journal entry reclassification process. In addition, FHA assessed the value of introducing new technologies that work in conjunction with SAMS. Based on the review of the major deficiencies with SAMS, FHA proposed the following modifications in addition to those already scheduled:

- **Front-end graphical user interface (GUI)** - Provide standardized text and graphics presentation with point and click selection. Offer functionality similar to widely used Windows and Apple applications.
- **Contemporary reporting and analytical tool** - Provide a user-friendly tool with capability to design and store queries and reports and present results in columnar or graphical format. Offer ability to easily select and join files and fields and send output to the screen, print, or file.

- **New procurement module** – Provide a procurement module to control contracts and payments.
- **Improved communication capabilities** - Provide the capability to generate letters and select an output option to print, fax, or email. Include email capability familiar in today's market, such as an address book, established groups for broadcast email/messages, and attachments.

3.3.2 Customized Solution

This option calls for HUD personnel or its contractors to design and develop a customized system solution in-house. In this option, HUD personnel are responsible for all parts of the system development lifecycle, including:

- Defining the functional and technical requirements.
- Selecting the appropriate technology.
- Designing and developing the software (developing hardware/software plan, installing the software, setting up the database, establishing security, configuring the software, converting the data, constructing the interfaces, and developing queries and reports).
- Testing the software and system.
- Training and business process re-engineering.
- Phasing out the old system.
- Modifying and operating the system.

3.3.3 COTS Solution

The COTS-based approach consists of signing a licensing agreement with a software vendor for property management and REO systems or other packages that are capable of meeting Single Family's requirements. In this option, FHA signs a license agreement with a software vendor for the use of a property management solution. The software vendor also offers or provides the tools for implementation, product integration, customization, and source code development associated with "gluing and wrapping" the COTS components.

3.3.4 ASP Solution

As this is the proposed solution, information on this option can be found in section 3.2.

3.3.5 Data Reporting Solution

With this option, FHA discontinues the use of SAMS and requires the M&M contractor to report data on a pre-defined basis. In this option, HUD does not have a contractual relationship with a specific ASP. FHA forms partnerships with the IT industry and works with the industry to outline requirements for HUD's programs. Individual M&M contractors develop their own systems in-house or contract with an ASP to provide such services. HUD does not pay for the system services or have the rights to the systems. However, the M&M contractors may end up passing on the costs to HUD.

For this option, FHA needs to develop a data warehouse or similar repository to store incoming data, create reports, and review the data to monitor adherence to contract terms. FHA also needs to perform periodic on-site audits to verify the validity of information provided. FHA may be able to leverage existing database and reporting applications. However, FHA may choose to license/purchase a data warehouse application that assists in the development of the data structures, storage, and interfaces.

4.0 COSTS

4.0 COSTS

This section presents a breakdown of the investment, recurring, phase-out, and non-quantifiable costs for each of the five solutions. For each option, we present five year estimates along with an explanation of the key cost drivers. The cost figures for each line item were developed in accordance with IBM's MethodBLUE methodologies and toolsets. MethodBLUE is a compilation of IBM's methodologies, best practices, deliverable repositories, and management guidelines. Whenever exact costs figures were not available from FHA, estimates were developed leveraging industry standards, vendor input, and MethodBLUE benchmarks.

For each new system solution (i.e., every solution except the Status Quo), the non-recurring investment costs are limited to year 1. It was assumed that each solution can and will be implemented in a single year in order to better facilitate comparison across options. In addition, for all options that replace SAMS, it is assumed that SAMS will be phased out within one year.

4.1 Status Quo Costs

This section defines the costs associated with maintaining the Status Quo. Unlike the other options, we provide cost estimates for the status quo for SAMS rather than the costs for the proposed enhancements to SAMS. This approach follows standard cost-benefit analysis practice of measuring options against the status quo. Input for this option was provided by FHA personnel and was based upon an analysis of FY2002 actual expenditures.

4.1.1 Investment Costs

There are no investment costs for maintaining the Status Quo.

4.1.2 Recurring Costs

The recurring costs associated with maintaining the Status Quo are presented below along with an explanation of the key drivers and assumptions.

Exhibit 4-1 Recurring Costs for Status Quo

Activity	FY 2004	FY2005	FY2006	FY2007	FY2008	5-Year Total	NPV
Software Maintenance Activities	$2,549,504	$2,608,652	$2,669,173	$2,731,098	$2,794,460	$13,352,887	$11,520,837
System Operations & Upgrades	$230,902	$236,259	$241,740	$247,349	$253,087	$1,209,338	$1,043,414
Hardware & Communications	$500,000	$511,600	$523,469	$535,614	$548,040	$2,618,723	$2,259,427
Ongoing IV&V for Upgrades	$2,791,504	$2,856,267	$2,922,532	$2,990,335	$3,059,711	$14,620,348	$12,614,399
FHA Functional Users	$915,915	$937,164	$958,907	$981,153	$1,003,916	$4,797,055	$4,138,887
Help Desk	$598,179	$612,056	$626,256	$640,785	$655,651	$3,123,928	$2,703,082
Recurring Cost Total	**$7,586,004**	**$7,761,999**	**$7,942,077**	**$8,126,334**	**$8,314,865**	**$39,731,278**	**$34,280,045**

- **Software Maintenance/Upgrades** – Covers the costs for maintaining and upgrading SAMS consistent with the level of effort for FY2002 as provided by FHA personnel. Costs include contractor staffing and management costs.
- **System Operations & Upgrades** – Encompasses the costs associated with maintaining the SAMS system-operating environment. Estimates are based upon figures provided by FHA personnel for FY2002.
- **Hardware & Communications** – Based upon actual cost figures for FY2002 and include cost estimates for mainframe partition, three dedicated servers (production, test, and development), and communication circuits needed to support SAMS. (These costs are based on supporting SAMS at 18 different sights. Under the new M&M contract, the number of sights that SAMS will need to support may increase to as many as 24.)
- **Ongoing Independent Verification and Validation (IV&V)** – Represents the costs associated with testing and monitoring SAMS upgrades and maintenance efforts as provided by FHA personnel.
- **FHA Functional Users** – Includes the salary, overhead, and fringe costs associated with FHA staff attributable to SAMS as provided by FHA personnel.

- **Help Desk** – Includes the costs associated with staffing and operating the SAMS help desk function as provided by FHA personnel.

4.1.3 Phase-Out Costs

There are no phase-out costs for the Status Quo because SAMS is not phased-out in this option.

4.1.4 Non-Quantifiable Costs

The following non-quantifiable costs have been identified for the Status Quo:

- **Continued audit problems** – The Status Quo systems environment does not produce sufficiently accurate information and does not have sufficient management controls, as documented in the *FHA Audit of Financial Statements Fiscal Years 2002 and 2001*. FHA has been directed to eliminate these problems, which are not adequately addressed by the Status Quo solution. As a result, FHA should not consider the Status Quo as a viable option. Therefore, we use the information developed for the Status Quo as a baseline for comparison to the other replacement options.
- **Does not provide desired level of functionality** – SAMS does not provide adequate functionality in terms of ease-of-use, accurate and timely information, and ease-of-maintenance. We define additional business drivers that support the replacement of SAMS in the *Alternatives Assessment* document.

4.2 Customized Costs

This section presents the various costs associated with implementing and maintaining a new custom-built system to replace SAMS.

4.2.1 Investment Costs

The non-recurring investment costs for implementing the new Customized solution are presented below.

Exhibit 4-2 Investment Costs for Customized Solution

Activity	FY2004
Software	$437,500
Hardware	$500,000
Configuration	$1,312,500
Customization	$10,500,000
Interfaces	$2,250,000
Testing	$1,500,000
Data Conversion	$750,000
BPR	$750,000
Training	$350,000
Change Management	$200,000
Project Management	$1,200,000
Implementation IV&V	$1,050,000
Investment Cost Total	**$20,800,000**

- **Software** – Includes base software tools necessary to construct the new system. Assumes FHA can leverage some existing toolsets (e.g., database and network licenses).
- **Hardware** – Assumes that FHA requires new hardware to support the development, testing, and production environments on a more modern client-server or web-enabled environment. This new environment has not yet been defined, but it is assumed to leverage technology comparable to that of the COTS solution and should reflect the design of the target enterprise architecture.
- **Configuration** – Represents costs for configuring the new environment and establishing basic reusable modular data constructs and views.

- **Customization** – Includes costs for developing software to the same level of functionality of existing COTS packages to provide proposed functionality on a new technology architecture.
- **Interfaces** – Cost estimates for building interfaces from new system databases to legacy systems. Also includes significant interface development for the rules engine that will translate property management business events into accounting events for FHA's Subsidiary Ledger. Estimates were developed leveraging IBM's MethodBLUE system estimating tools and methodology.
- **Testing** – Includes significant unit, application, and testing costs typical for a software development organization. Estimates were developed leveraging IBM's MethodBLUE system estimating tools and methodology.
- **Data Conversion** – Assumes FHA will need to build custom data conversion routines for the new application. Estimates were developed leveraging IBM's MethodBLUE system estimating tools and methodology.
- **Business Process Redesign** – Cost estimates for redesigning FHA's business processes associated with SAMS to improve efficiency and integrate with the target systems environment. Estimates were developed leveraging IBM's MethodBLUE system estimating tools and methodology.
- **Training** – Includes both technical and end-user training. Estimates were developed leveraging IBM's MethodBLUE system estimating tools and methodology.
- **Change Management** – The costs for managing and communicating information to all stakeholders on the transition from SAMS to the target environment. Estimates were developed leveraging IBM's MethodBLUE system estimating tools and methodology.
- **Project Management** – The level of effort required to effectively manage all of the tasks necessary with implementing the new option within one year. Also includes costs for effective project risk identification and mitigation. Estimates were developed leveraging IBM's MethodBLUE system estimating tools and methodology.
- **IV&V** – Costs associated with hiring an independent organization to monitor implementation progress and identify discrepancies from FHA's documented expectations and requirements. Estimates were developed leveraging IBM's MethodBLUE system estimating tools and methodology.

4.2.2 Recurring Costs

The recurring costs associated with maintaining, upgrading, and operating the Customized solution are presented below along with an explanation of the key drivers and assumptions.

Exhibit 4-3 Recurring Costs for Customized Solution

Activity	FY 2004	FY2005	FY2006	FY2007	FY2008	5-Year Total	NPV
Software Maintenance Activities		$2,608,652	$2,669,173	$2,048,324	$1,676,676	$9,002,825	$7,659,339
System Operations & Upgrades		$236,259	$241,740	$247,349	$253,087	$978,436	$823,607
Hardware & Communications	$62,500	$250,000	$255,800	$261,735	$267,807	$1,097,841	$931,005
Ongoing IV&V for Upgrades		$2,856,267	$2,922,532	$2,242,751	$1,835,826	$9,857,376	$8,386,366
FHA Functional Users	$915,915	$937,164	$958,907	$981,153	$1,003,916	$4,797,055	$4,138,887
Help Desk		$612,056	$626,256	$640,785	$655,651	$2,534,749	$2,133,648
Recurring Cost Total	**$978,415**	**$7,500,399**	**$7,674,408**	**$6,422,096**	**$5,692,963**	**$28,268,282**	**$24,072,853**

- **Software Maintenance/Upgrades** – The costs for maintaining and upgrading the custom-built solution are assumed to be equivalent to those associated with maintaining SAMS for the first two years of its operational life as the new system environment stabilizes. Beginning in year 4 (FY2007), however, it is estimated that these costs will decrease relative to the Status Quo as FHA leverages the improved architecture of the environment.
- **System Operations & Upgrades** – Assumes that these minimal costs will be equivalent to those for the Status Quo option.
- **Hardware & Communications** – Assumes that these costs will be equivalent to those for the COTS option. These costs reflect that hardware and communication costs will be reduced as the target environment leverages more modern technologies and the application is removed from the mainframe environment.
- **Ongoing IV&V** – Represents the costs associated with testing and monitoring upgrades and maintenance efforts for the new Customized option. These costs are assumed to be equivalent to those associated with maintaining SAMS for the first two years of its operational life as the new system environment stabilizes. Beginning in year 4 (FY2007), however, it is estimated that these costs will decrease relative to the Status Quo as FHA leverages the improved architecture of the environment.

- **FHA Functional Users** – Includes the salary, overhead, and fringe costs associated with FHA staff attributable to SAMS as provided by FHA personnel.
- **Help Desk** – Assumes that these costs will be equivalent to those for the Status Quo option, as it is unclear how effectively FHA can incorporate self-help support into the software design and not have to fund a dedicated help desk like that provided or already incorporated into the COTS and ASP solutions as part of their licensing costs.

4.2.3 Phase-Out Costs

The phase-out costs are estimated to be the same for each new system solution. Each new system solution is assumed to be implemented within a year. Accordingly, for each new system solution, it is also assumed that SAMS will be fully operational until FY2005. The identical phase-out cost estimate for the Customized, COTS, ASP, and Data Reporting solutions is presented below.

Exhibit 4-4 Phase-Out Costs for Customized Solution

Activity	FY2004
Legacy System Phase Out	$6,827,403
Phase-Out Cost Total	$6,827,403

The figure for the legacy system phase out was constructed by estimating the level of effort needed to support the Status Quo environment in a situation where new upgrade efforts are discontinued. As a result, it is estimated that only 90% of the total recurring costs incurred under the Status Quo scenario are incurred during the year in which the new system is constructed and implemented (FY2004). As a result, the approximate $6.8 million phase-out costs represent about a $760,000 discount from the estimated operating costs for FY2004 under the Status Quo scenario.

4.2.4 Non-Quantifiable Costs

The following non-quantifiable costs have been identified for the Customized solution:

- **Unlikely that project can be completed in single year** – For comparative purposes, one of the primary assumptions for the Customized solution is that FHA can develop a complete replacement of SAMS from scratch in a single year. However, given the complexity and difficulty of large custom-build software projects, it is unlikely that this assumption can be realized. Alternatively, there is a greater likelihood that both the COTS and ASP solutions can be operational within a year, making the Customized option look less viable relative to the other solutions. Since it is unlikely that FHA can implement the Customized option in a single year, an alternative presentation of the implementation and recurring cost numbers are presented in Appendix A of this analysis.
- **FHA would need to develop core competencies similar to that of a software development organization** – In order to complete the Customized project and develop a

system of similar functionality to the COTS and ASP solutions, HUD-FHA will need to create a development environment and adopt methodologies on par with those of a software manufacturer. Moreover, these capabilities will need to be sustained for the lifecycle of the project. It is unclear how the development of such capabilities enhances HUD's or FHA's ability to meet its mission statement and strategic objectives.

4.3 COTS Costs

This section presents the various costs associated with implementing a COTS solution to replace SAMS.

4.3.1 Investment Costs

The non-recurring investment costs for implementing the COTS solution are presented below.

Exhibit 4-5 Investment Costs for COTS Solution

Activity	FY2004
Software	$1,750,000
Hardware	$500,000
Configuration	$2,625,000
Customization	$875,000
Interfaces	$2,250,000
Testing	$500,000
Data Conversion	$750,000
BPR	$750,000
Training	$350,000
Change Management	$200,000
Project Management	$400,000
Implementation IV&V	$350,000
Investment Cost Total	**$11,300,000**

- **Software** – Includes the license for a new COTS package and an allocation for basic middleware tools. Assumes FHA can leverage some existing toolsets (e.g., database and network licenses). Estimates were developed by querying multiple vendors and by comparing these costs to industry benchmarks. Estimates do not reflect any potential negotiated discounts.
- **Hardware** – Assumes that FHA requires new hardware to support the development, testing, and production environments on a more modern client-server or web-enabled environment. This new environment will be defined based on the package selected, but it is assumed to leverage technology comparable to that of the Custom solution and should reflect the design of the target enterprise architecture.
- **Configuration** – Represents costs for configuring the COTS product to work in the FHA environment. Assumes that configuration will represent the majority of the development costs. Estimates were developed leveraging IBM's MethodBLUE system estimating tools and methodology.
- **Customization** – Includes costs for developing a limited amount of additional functionality to address unique FHA needs not addressed by software configuration and interface development activities. Estimates were developed leveraging IBM's MethodBLUE system estimating tools and methodology.
- **Interfaces** – Cost estimates for building interfaces from the new system to legacy systems. Also includes significant interface development for the rules engine that will translate property management business events into accounting events for FHA's Subsidiary Ledger. Estimates were developed leveraging IBM's MethodBLUE system estimating tools and methodology.
- **Testing** – Includes unit, application, and testing costs associated with typical COTS implementations. Estimates were developed leveraging IBM's MethodBLUE system estimating tools and methodology.
- **Data Conversion** – Assumes FHA can leverage a standard data conversion associated with typical COTS packages. Estimates were developed leveraging IBM's MethodBLUE system estimating tools and methodology.
- **Business Process Redesign** – Cost estimates for redesigning the processes to improve efficiency and integrate with the target systems environment. Estimates were developed leveraging IBM's MethodBLUE system estimating tools and methodology.
- **Training** – Includes both technical and end-user training. Estimates were developed leveraging IBM's MethodBLUE system estimating tools and methodology.
- **Change Management** – The costs for managing and communicating information on the transition from SAMS to the target environment. Estimates were developed leveraging IBM's MethodBLUE system estimating tools and methodology.
- **Project Management** – The level of effort required to effectively manage all of the tasks necessary with implementing the new option within one year. Also includes costs for effective project risk identification and mitigation. Estimates were developed leveraging IBM's MethodBLUE system estimating tools and methodology.
- **IV&V** – Costs associated with hiring an independent organization to monitor implementation progress and identify discrepancies from FHA's documented expectations and requirements. Estimates were developed leveraging IBM's MethodBLUE system estimating tools and methodology.

4.3.2 Recurring Costs

The recurring costs associated with maintaining, upgrading, and operating the COTS solution are presented below along with an explanation of the key drivers and assumptions.

Exhibit 4-6 Recurring Costs for COTS Solution

Activity	FY 2004	FY2005	FY2006	FY2007	FY2008	5-Year Total	NPV
Software Maintenance Activities		$500,000	$511,600	$523,469	$535,614	$2,070,683	$1,743,016
System Operations & Upgrades		$300,000	$306,960	$314,081	$321,368	$1,242,410	$1,045,810
Hardware & Communications	$62,500	$250,000	$255,800	$261,735	$267,807	$1,097,841	$931,005
Ongoing IV&V for Upgrades		$250,000	$255,800	$261,735	$267,807	$1,035,341	$871,508
FHA Functional Users	$915,915	$937,164	$958,907	$981,153	$1,003,916	$4,797,055	$4,138,887
Help Desk		$350,000	$358,120	$366,428	$374,930	$1,449,478	$1,220,111
Recurring Cost Total	**$978,415**	**$2,587,164**	**$2,647,187**	**$2,708,601**	**$2,771,441**	**$11,692,808**	**$9,950,337**

- **Software Maintenance/Upgrades** – The costs for licensing and maintaining the COTS system and applying vendor-supplied upgrades. Includes estimates for upgrading FHA-specific modifications to the baseline software. Estimates were developed leveraging IBM's MethodBLUE system estimating tools and methodology.
- **System Operations & Upgrades** – Assumes minimal costs for system operation and maintenance. Estimates were developed leveraging IBM's MethodBLUE system estimating tools and methodology for typical annual upgrades and patches of low complexity.
- **Hardware & Communications** – Assumes that these costs will be approximately 50% of those for the mainframe-based Status-Quo environment. Estimates were developed leveraging IBM's MethodBLUE system estimating tools and methodology.
- **Ongoing IV&V** – Represents the costs associated with testing and monitoring upgrade and maintenance efforts for the new COTS option. These costs are assumed to be 50% of the software maintenance and upgrade costs. Estimates were developed leveraging IBM's MethodBLUE system estimating tools and methodology.
- **FHA Functional Users** – Includes the salary, overhead, and fringe costs associated with FHA staff attributable to SAMS as provided by FHA personnel.

- **Help Desk** – Costs for HUD- or FHA-provided help desk. These costs reflect a discount relative to the Status Quo as vendor-supplied help desk support is built into the software maintenance and licensing costs.

4.3.3 Phase-Out Costs

The phase-out costs are estimated to be the same for each new system solution. Each new system solution is assumed to be implemented within a year. Accordingly, for each new system solution, it is also assumed that SAMS will be fully operational until FY2005. The identical phase-out cost estimate for the Customized, COTS, ASP, and Data Reporting solutions is presented below.

Exhibit 4-7 Phase-Out Costs for COTS Solution

Activity	FY2004
Legacy System Phase Out	$6,827,403
Phase-Out Cost Total	$6,827,403

The figure for the legacy system phase out was constructed by estimating the level of effort needed to support the Status Quo environment in a situation where new upgrade efforts are discontinued. As a result, it is estimated that only 90% of the total recurring costs incurred under the Status Quo scenario are incurred during the year in which the new system is constructed and implemented (FY2004). As a result, the approximate $6.8 million phase-out costs represent about a $760,000 discount from the estimated operating costs for FY2004 under the Status Quo scenario.

4.3.4 Non-Quantifiable Costs

The following non-quantifiable cost has been identified for the COTS solution:

- **Dependent upon software manufacture for future enhancements** – FHA will need to actively manage the COTS vendor to ensure that any desired changes become part of the baseline product in future releases. Moreover, COTS vendors typically only support the last few versions of their software (e.g., last 3 releases). The result is that FHA will have to upgrade with the vendor's release cycle (typically a yearly cycle) in order to maintain vendor support for their system, even if FHA does not desire any additional functionality. For the purposes of this analysis, it is assumed that the vendor's future upgrades and patches will not affect any customizations incorporated into the initial release. It is also assumed that these yearly upgrades will be low complexity.

4.4 ASP Costs

This section presents the various costs associated with implementing an ASP solution to replace SAMS.

4.4.1 Investment Costs

The non-recurring investment costs for implementing the ASP solution are presented below.

Exhibit 4-8 Investment Costs for ASP Solution

Activity	FY2004
Software	$437,500
Hardware	$250,000
Configuration	$1,312,500
Customization	$437,500
Interfaces	$3,375,000
Testing	$375,000
Data Conversion	$750,000
BPR	$937,500
Training	$350,000
Change Management	$200,000
Project Management	$400,000
Implementation IV&V	$350,000
Investment Cost Total	**$9,175,000**

- **Software** – Includes an estimate for any pass-through for the software license from the ASP and basic middleware tools. Assumes FHA can leverage some existing toolsets (e.g., database and network licenses). Estimates were developed by querying vendors for price quotes and by comparing these costs to industry benchmarks. These quotes do not reflect any potential discounts that might be negotiated by FHA.
- **Hardware** – Assumes that FHA will need minimal additional hardware to implement a new ASP solution, as the ASP will be responsible for providing processing power. Assumes FHA will still need to invest in connectivity hardware.
- **Configuration** – Represents costs for configuring the ASP product to work in the FHA environment. Assumes that any configuration costs are significantly reduced relative to the COTS solution. These costs assume some “pass-through” costs from the ASP onto FHA to

fund the implementation of their solution. Estimates were developed leveraging IBM's MethodBLUE system estimating tools and methodology.

- **Customization** – Includes costs for developing a limited amount of additional functionality to address FHA needs not addressed by software configuration and interface development activities, such as FHA's unique discount programs, data structure, and reporting requirements. Estimates were developed by leveraging IBM's MethodBLUE knowledge repositories.
- **Interfaces** – Cost estimates for building interfaces from the new system to legacy systems. Also includes significant interface development for the rules engine that will translate property management business events into accounting events for FHA's Subsidiary Ledger. Estimates were developed leveraging IBM's MethodBLUE system estimating tools and methodology.
- **Testing** – Includes unit, application, and testing costs associated with typical ASP implementations. Estimates were developed leveraging IBM's MethodBLUE system estimating tools and methodology.
- **Data Conversion** – Assumes FHA can leverage a standard data conversion associated with typical ASP solutions. Estimates were developed by leveraging IBM's MethodBLUE knowledge repositories.
- **Business Process Redesign** – Cost estimates for redesigning the processes to improve efficiency and integrate with the target systems environment. Estimates assume that Business Process Redesign (BPR) efforts will be slightly higher than the COTS solution due to the increased need to modify processes to fit the ASP.
- **Training** – Includes both technical and end-user training. Estimates were developed leveraging IBM's MethodBLUE system estimating tools and methodology.
- **Change Management** – The costs for managing and communicating information on the transition from SAMS to the target environment. Estimates were developed by leveraging IBM's MethodBLUE knowledge repositories.
- **Project Management** – The level of effort required to effectively manage all of the tasks necessary with implementing the new option within one year. Also includes costs for effective project risk identification and mitigation. Estimates were developed leveraging IBM's MethodBLUE system estimating tools and methodology.
- **IV&V** – Costs associated with hiring an independent organization to monitor implementation progress and identify discrepancies from FHA's documented expectations and requirements. Estimates were developed leveraging IBM's MethodBLUE system estimating tools and methodology.

4.4.2 Recurring Costs

The recurring costs associated with maintaining, upgrading, and operating the ASP solution are presented below along with an explanation of the key drivers and assumptions.

Exhibit 4-9 Recurring Costs for ASP Solution

Activity	FY 2004	FY2005	FY2006	FY2007	FY2008	5-Year Total	NPV
Software Maintenance Activities		$125,000	$127,900	$130,867	$133,903	$517,671	$435,754
System Operations & Upgrades		$1,500,000	$1,534,800	$1,570,407	$1,606,841	$6,212,048	$5,229,049
Hardware & Communications	$15,625	$62,500	$63,950	$65,434	$66,952	$274,460	$232,751
Ongoing IV&V for Upgrades		$62,500	$63,950	$65,434	$66,952	$258,835	$217,877
FHA Functional Users	$915,915	$937,164	$958,907	$981,153	$1,003,916	$4,797,055	$4,138,887
Help Desk		$87,500	$89,530	$91,607	$93,732	$362,369	$305,028
Recurring Cost Total	**$931,540**	**$2,774,664**	**$2,839,037**	**$2,904,902**	**$2,972,296**	**$12,422,439**	**$10,559,346**

- **Software Maintenance/Upgrades** – The costs for licensing and maintaining basic middleware and communications software associated with the ASP solution. The ASP absorbs most of these costs relative to the COTS solution. Estimates were developed leveraging IBM's MethodBLUE system estimating tools and methodology.
- **System Operations & Upgrades** – Assumes a transaction cost of $25 per property annually as determined through a survey of multiple ASPs. Assumes 60,000 properties will be processed annually as indicated by FHA personnel.
- **Hardware & Communications** – Assumes minimal recurring hardware costs, as the ASP will furnish hardware on which the application resides. Estimates were developed leveraging IBM's MethodBLUE system estimating tools and methodology.
- **Ongoing IV&V** – Represents the costs associated with testing and monitoring upgrade and maintenance efforts for the new ASP option. These costs are assumed to be 50% of the software maintenance and upgrade costs. Estimates were developed leveraging IBM's MethodBLUE system estimating tools and methodology.
- **FHA Functional Users** – Includes the salary, overhead, and fringe costs associated with FHA staff attributable to SAMS as provided by FHA personnel.

- **Help Desk** – Costs for HUD- or FHA-provided help desk. These costs reflect a discount relative to the Status Quo as vendor-supplied help desk support is built into the ASP transaction costs.

4.4.3 Phase-Out Costs

The phase-out costs are estimated to be the same for each new system solution. Each new system solution is assumed to be implemented within a year. Accordingly, for each new system solution, it is also assumed that SAMS will be fully operational until FY2005. The identical phase-out cost estimate for the Customized, COTS, ASP, and Data Reporting solutions is presented below.

Exhibit 4-10 Phase-Out Costs for ASP Solution

Activity	FY2004
Legacy System Phase Out	$6,827,403
Phase-Out Cost Total	$6,827,403

The figure for the legacy system phase out was constructed by estimating the level of effort needed to support the Status Quo environment in a situation where new upgrade efforts are discontinued. As a result, it is estimated that only 90% of the total recurring costs incurred under the Status Quo scenario are incurred during the year in which the new system is constructed and implemented (FY2004). As a result, the approximate $6.8 million phase out costs represent about a $760,000 discount from the estimated operating costs for FY2004 under the Status Quo scenario.

4.4.4 Non-Quantifiable Costs

The following non-quantifiable costs have been identified for the ASP solution:

- **Less control over future enhancements** – The ASP is responsible for providing software functionality to multiple clients and FHA will need to ensure that provisions are made for addressing its needs into future service upgrades.
- **Viability of ASP** – The financial stability of the ASP is a major factor in the vendor selection process. The ASP selected should have a strong financial position and a proven record of providing long-term service to its customers.

4.5 Data Reporting Costs

This section presents the various costs associated with implementing a contractor-interfaced Data Reporting solution to replace SAMS.

4.5.1 Investment Costs

The non-recurring investment costs for implementing the Data Reporting solution are presented below.

Exhibit 4-11 Investment Costs for Data Reporting Solution

Activity	FY2004
Software	$875,000
Hardware	$500,000
Configuration	$1,312,500
Customization	$437,500
Interfaces	$5,250,000
Testing	$1,125,000
Data Conversion	$750,000
BPR	$1,875,000
Training	$350,000
Change Management	$400,000
Project Management	$400,000
Implementation IV&V	$350,000
Investment Cost Total	**$13,625,000**

- **Software** – Includes an estimate for software necessary to construct the data warehouse to obtain data to/from contractors. Assumes FHA can leverage some existing toolsets (e.g., database and reporting tools). Estimates were developed leveraging IBM's MethodBLUE system estimating tools and methodology.
- **Hardware** – Assumes that FHA will need additional hardware to support the development, testing, and production environments on a modern data-warehousing environment. This new environment has not yet been defined, but it is assumed to leverage technology that should reflect the design of the target enterprise architecture.

- **Configuration** – Represents costs for configuring the data warehouse to store inbound/outbound data required to interface with the various contractors. Estimates were developed leveraging IBM's MethodBLUE system estimating tools and methodology.
- **Customization** – Includes costs for developing a limited amount of custom functionality to account for unique reporting and data analysis needs not addressed by the data warehouse configuration activities covered above. Estimates were developed leveraging IBM's MethodBLUE system estimating tools and methodology.
- **Interfaces** – Cost estimates for building, testing, and implementing robust two-way interfaces between the contractors and the new data warehouse. Also includes significant interface development for the rules engine that will translate property management business events into accounting events for FHA's Subsidiary Ledger. Estimates were developed leveraging IBM's MethodBLUE system estimating tools and methodology.
- **Testing** – Includes unit, application, and testing costs associated with typical data warehouse implementations, and testing of interfaces with each contractor. Estimates were developed leveraging IBM's MethodBLUE system estimating tools and methodology.
- **Data Conversion** – Assumes FHA can leverage a standard data conversion associated with typical data warehouse solutions. Estimates were developed leveraging IBM's MethodBLUE system estimating tools and methodology.
- **Business Process Redesign** – Cost estimates for redesigning the processes to improve efficiency and integrate with the target systems environment. As a result of a more radical departure from the current operating model, it is assumed that these costs will be significantly higher than the COTS and ASP options. Estimates were developed leveraging IBM's MethodBLUE system estimating tools and methodology.
- **Training** – Includes both technical and end-user training. Estimates were developed leveraging IBM's MethodBLUE system estimating tools and methodology.
- **Change Management** – The costs for managing and communicating information on the transition from SAMS to the target environment. Estimates were developed leveraging IBM's MethodBLUE system estimating tools and methodology. As this option represents a more radical departure from the current operating model, it is assumed that these costs will be significantly higher than the COTS and ASP options.
- **Project Management** – The level of effort required to effectively manage all of the tasks necessary with implementing the new option within one year. Also includes costs for effective project risk identification and mitigation. Estimates were developed leveraging IBM's MethodBLUE system estimating tools and methodology.
- **IV&V** – Costs associated with hiring an independent organization to monitor implementation progress and identify discrepancies from FHA's documented expectations and requirements. Estimates were developed leveraging IBM's MethodBLUE system estimating tools and methodology.

4.5.2 Recurring Costs

The recurring costs associated with maintaining, upgrading, and operating the Data Reporting solution are presented below along with an explanation of the key drivers and assumptions.

Exhibit 4-12 Recurring Costs for Data Reporting Solution

Activity	FY 2004	FY2005	FY2006	FY2007	FY2008	5-Year Total	NPV
Software Maintenance Activities		$250,000	$255,800	$261,735	$267,807	$1,035,341	$871,508
System Operations & Upgrades		$1,800,000	$1,841,760	$1,884,489	$1,928,209	$7,454,458	$6,274,859
Hardware & Communications	$15,625	$125,000	$127,900	$130,867	$133,903	$533,296	$450,628
Ongoing IV&V for Upgrades		$125,000	$127,900	$130,867	$133,903	$517,671	$435,754
FHA Functional Users	$915,915	$937,164	$958,907	$981,153	$1,003,916	$4,797,055	$4,138,887
Help Desk		$400,000	$409,280	$418,775	$428,491	$1,656,546	$1,394,413
Recurring Cost Total	**$931,540**	**$3,637,164**	**$3,721,547**	**$3,807,886**	**$3,896,229**	**$15,994,367**	**$13,566,049**

- **Software Maintenance/Upgrades** – The costs for licensing and maintaining data warehouse software associated with this solution. The contractors will absorb most of the functional software costs relative to a software solution. Estimates were developed leveraging IBM's MethodBLUE system estimating tools and methodology.
- **System Operations & Upgrades** – Assumes a transaction cost of $30 per property annually, which represents an increase relative to the ASP solution. This increase reflects the assumption that some of the system implementation costs transferred to the contractors under this approach (e.g., property management software, ASP transaction fees, etc.) will be passed-back to FHA in some form (i.e., higher fees). Assumes 60,000 properties will be processed annually as indicated by FHA personnel. This line item also includes project management and change management activities to account for the ongoing interaction with the contractors and to coordinate continued operations with them.
- **Hardware & Communications** – Assumes minimal recurring hardware costs, as the contractors will furnish the hardware on which the application resides. Estimates were developed leveraging IBM's MethodBLUE system estimating tools and methodology.
- **Ongoing IV&V** – Represents the costs associated with testing and monitoring upgrade and maintenance efforts for this option. Estimates were developed leveraging IBM's MethodBLUE system estimating tools and methodology.

- **FHA Functional Users** – Includes the salary, overhead, and fringe costs associated with FHA staff attributable to SAMS as provided by FHA personnel.
- **Help Desk** – Costs for HUD- or FHA-provided help desk. These costs reflect a discount relative to the Status Quo as vendor-supplied help desk support is built into the contractors' transaction costs described previously under System Operations and Upgrades.

4.5.3 Phase-Out Costs

The phase-out costs are estimated to be the same for each new system solution. Each new system solution is assumed to be implemented within a year. Accordingly, for each new system solution, it is also assumed that SAMS will be fully operational until FY2005. The identical phase-out cost estimate for the Customized, COTS, ASP, and Data Reporting solutions is presented below.

Exhibit 4-13 Phase-Out Costs for Data Reporting Solution

Activity	FY2004
Legacy System Phase Out	$6,827,403
Phase-Out Cost Total	$6,827,403

The figure for the legacy system phase out was constructed by estimating the level of effort needed to support the Status Quo environment in a situation where new upgrade efforts are discontinued. As a result, it is estimated that only 90% of the total recurring costs incurred under the Status Quo scenario are incurred during the year in which the new system is constructed and implemented (FY2004). As a result, the approximate $6.8 million phase out costs represent about a $760,000 discount from the estimated operating costs for FY2004 under the Status Quo scenario.

4.5.4 Non-Quantifiable Costs

The following non-quantifiable costs have been identified for the Data Reporting solution:

- **Unlikely that project can be completed in single year** – For comparative purposes, one of the primary assumptions for the Data Reporting solution is that within the first year the M&M contractors can assume all of the requisite SAMS functionality and that interfaces to FHA's data warehouse can be built. It is unlikely that this assumption can be realized, given the proposed changes placed on the contractors. For example, the contractors may need to conduct their own systems acquisition, implementation, or upgrade efforts. Since it is unlikely that FHA can implement this option in a single year, an alternative presentation of the implementation and recurring cost numbers are presented in Appendix A of this analysis.
- **Unclear whether contractors can meet these requirements** – Vendors will need to develop their own systems to provide the functionality and data previously provided by FHA. It is unclear how receptive and able the M&M contractors and other external stakeholders will be to the implementation of this option.

5.0 BENEFITS

5.0 BENEFITS

This section describes the *incremental* benefits for each solution under consideration by FHA for the SAMS replacement initiative. Incremental benefits are defined as only those benefits that would vary between options (e.g., ease of system maintenance). Presented below is a description of the non-recurring, recurring, and non-quantifiable benefits associated with each of the five options: maintaining the status quo, building a custom software solution, implementing a COTS package, outsourcing the application to an ASP, and requiring the M&M contractors to provide their own software solution and interface with a new FHA data warehouse. A detailed analysis of the specific *non-incremental* benefits for each option is presented in the *Alternatives Assessment* document.

5.1 Status Quo Benefits

This section presents the benefits associated with maintaining the current SAMS system in a manner consistent with current operations. The benefits have been organized into three categories: non-recurring, recurring, and non-quantifiable.

5.1.1 Non-Recurring Benefits

The primary one-time benefit associated with maintaining the Status Quo is that there are no up-front investment costs or phase-out costs for year 1 (FY2004) associated with this option, which are both non-recurring events. While there are significantly higher operational costs for FY2004 relative to the other four options, the total FY2004 costs are significantly lower for the Status Quo option as depicted in table 5-1 below:

Exhibit 5-1 Non-Recurring Benefits Relative to Status Quo

Cost	Status Quo	Customized	COTS	ASP	Data Reporting
Total Year 1 Costs (FY2004)	$7,586,004	$28,605,818	$19,105,818	$16,933,943	$21,383,943
Savings (Cost) Relative to Status Quo	-	($21,019,815)	($11,519,815)	($9,347,940)	($13,797,940)

5.1.2 Recurring Benefits

No quantifiable recurring benefits can be identified for the Status Quo option.

5.1.3 Non-Quantifiable Benefits

The non-quantifiable benefits associated with maintaining the current system are:

- Requires no change to work environment or contractor relations.
- Users are familiar with current system.
- Little-to-no potential project failure issues.

5.2 Customized Solution

The benefits associated with FHA developing, testing, and implementing its own custom-built solution are described in this subsection. The benefits have been organized into three categories: non-recurring, recurring, and non-quantifiable.

5.2.1 Non-Recurring Benefits

No quantifiable non-recurring benefits have been identified for this option.

5.2.2 Recurring Benefits

It is estimated that the Customized solution reduces the yearly maintenance and upgrade costs relative to the Status Quo. However, these lower maintenance and upgrade costs are not significant enough to compensate for the significantly higher implementation costs. Consequently, the total costs for the Customized solution do not break-even with the Status Quo within a five-year timeframe despite the recurring operational savings.

In addition, these same operational “savings” relative to the Status Quo are actually significantly higher than the operational costs of the COTS, ASP, and Data Reporting options. As a result, the Customized solution should be viewed as having no recurring benefits.

5.2.3 Non-Quantifiable Benefits

The following non-quantifiable benefits have been identified for the Customized solution:

- **Tighter control over target functionality** – By creating the SAMS replacement from scratch, FHA will be able to completely control what functionality and data the system will provide. However, until HUD fully defines its detailed requirements for a new systems solution, it is unclear what percentage of its requirements cannot be addressed by existing COTS software or ASP solutions.
- **Increased ability to control future upgrades** – The Customized solution allows FHA to control the functionality and timing of future upgrade efforts more directly than the COTS, ASP, or Data Reporting options.

5.3 COTS Solution Benefits

The benefits associated with implementing a COTS-based solution to replace SAMS are described in this subsection. The benefits have been organized into three categories: non-recurring, recurring, and non-quantifiable.

5.3.1 Non-Recurring Benefits

No quantifiable non-recurring benefits have been identified for the COTS solution.

5.3.2 Recurring Benefits

It is estimated that the COTS solution would provide significant recurring benefits to FHA relative to the Status Quo and $4.3 million in recurring benefits relative to the Data Reporting solution through a reduction in yearly operational costs. As the following table demonstrates, however, these recurring costs-savings are approximately equivalent to the COTS and ASP solutions.

Exhibit 5-2 Recurring Benefits Relative to Status Quo

Activity	Status Quo	Customized	COTS	ASP	Data Reporting
Software Maintenance Activities	$13,352,887	$9,002,825	$2,070,683	$517,671	$1,035,341
System Operations & Upgrades	$1,209,338	$978,436	$1,242,410	$6,212,048	$7,454,458
Hardware & Communications	$2,618,723	$1,097,841	$1,097,841	$274,460	$533,296
Ongoing IV&V for Upgrades	$14,620,348	$9,857,376	$1,035,341	$258,835	$517,671
FHA Functional Users	$4,797,055	$4,797,055	$4,797,055	$4,797,055	$4,797,055
Help Desk	$3,132,928	$2,534,749	$1,449,478	$362,369	$1,656,546
Recurring Cost Total	$39,731,278	$28,268,282	$11,692,808	$12,422,439	$15,994,367
Savings (Cost) Relative to Status Quo	-	$11,462,996	$28,038,470	$27,308,839	$23,736,912

It is estimated that the COTS and ASP solutions would provide between $27-$28 million savings each in operational costs over a five-year timeframe relative to the Status Quo.[2] The most significant savings for the COTS solution are described below.

[2] Please note that the above figures do not include the higher implementation costs associated with each of the new system options. These non-recurring estimates were previously provided in table 5-1.

- **Reduced system maintenance** – FHA will experience significantly lower maintenance and upgrade costs under the COTS solution. FHA will no longer be required to develop new enhancements and functionality, as these activities become the responsibility of the software manufactures. FHA will continue, however, to be responsible for installing new releases and testing them within FHA's environment.
- **Reduced hardware costs** – It is estimated that FHA would observe about a 50% reduction in its hardware operational costs relative to the Status Quo by migrating away from its current mainframe environment.
- **Reduced IV&V costs** – Over a five-year span, it is estimated that FHA would observe approximately a $13 million reduction in the IV&V testing costs associated with maintaining and upgrading the current SAMS environment relative to the Status Quo.

5.3.3 Non-Quantifiable Benefits

The following non-quantifiable benefits have been identified for the COTS solution:

- **Ability to shift management attention and personnel to core competencies** – Selecting the COTS solution shifts the majority of the burden for software development and maintenance to a full-time software company. This will allow FHA to shift significant resources to other mission-critical activities.
- **Ability to leverage industry standards and best practices** – COTS software by its nature incorporates the best practices from its user community.
- **Defined upgrade path** – COTS software also provides a standard release and upgrade path that incorporates new technology and functional changes required by the software manufacturer's user community. The software company is responsible for designing, constructing, and testing these upgrades. However, the burden of implementing new upgrades remains with FHA. Some software manufacturers only support their most recent versions, which forces their customers to upgrade to maintain vendor support.

5.4 ASP Solution Benefits

The benefits associated with outsourcing the current systems functionality provided by SAMS to an ASP are described in this subsection. The benefits have been organized into three categories: non-recurring, recurring, and non-quantifiable.

5.4.1 Non-Recurring Benefits

No quantifiable non-recurring benefits have been identified for the ASP solution relative to the Status Quo. However, relative to the Customized, COTS solutions, and Data Reporting solutions, the initial investment costs of implementation are significantly reduced. As presented in table 5-3 below, the ASP solution is $11.7 million less expensive to implement than the Customized solution, $2.2 million less expensive than the COTS solution, and $4.5 million less expensive than the Data Reporting solution.

Exhibit 5-3 Non-Recurring Benefits Relative to ASP

Cost	Status Quo	Customized	COTS	ASP	Data Reporting
Total Year 1 Costs (FY2004)	$7,586,004	$28,605,818	$19,105,818	$16,933,943	$21,383,943
Savings (Cost) Relative to Status Quo	$9,347,940	($11,671,875)	($2,171,875)	-	($4,450,000)

5.4.2 Recurring Benefits

It is estimated that the ASP solution would provide significant recurring benefits to FHA relative to the Status Quo and Customized solutions and $3.57 million in recurring benefits relative to the Data Reporting solution through a reduction in yearly operational costs. As presented in table 5-2 earlier, however, these recurring costs-savings are approximately equivalent to the COTS and ASP solutions. It is estimated that the COTS and ASP solutions would provide between $27-$28 million savings each in operational costs over a five-year timeframe relative to the Status Quo. The areas of savings provided by the ASP solution differ from that provided by the COTS solution. The most significant savings for the ASP solution are described below.

- **Elimination of most system maintenance and upgrade costs** – Under the ASP solution, the ASP would own and operate the software on FHA's behalf. The only software FHA would be required to maintain would be connectivity and infrastructure software necessary to access the ASP application. FHA would need to ensure that their interface with the ASP is properly maintained.
- **Reduced hardware costs** – It is estimated that FHA would observe a $2.3 million reduction in its hardware operational costs by migrating away from its current mainframe environment to an ASP solution. In addition, the hardware costs for the ASP solution are estimated to be approximately 75% less than the hardware costs for the COTS solution.
- **Reduced IV&V costs** – Over a five-year span, it is estimated that FHA would observe a $14.4 million reduction in the IV&V testing costs relative to the Status Quo. Additionally, these IV&V costs are estimated to be 75% less expensive than those for the COTS solution.
- **Elimination of most help desk costs** – The ASP would be responsible for providing help desk services as part of its service-level agreement. As a result, it is estimated that the help desk costs for this solution would be 88% less than the Status Quo solution.

5.4.3 Non-Quantifiable Benefits

The non-quantifiable benefits defined for the ASP solution are described below.

- **Reduced implementation burden on functional users** – The ASP solution would likely require the least amount of involvement from FHA functional users, as the software has already been developed and largely configured by the ASP.
- **Ability to shift management attention and personnel to core competencies** – Selecting the ASP solution shifts the majority of the burden for software development, maintenance,

and upgrades to the ASP. This will allow FHA to shift significant resources to other mission-critical activities.

- **Ability to leverage industry standards and best practices** – Since FHA is not the only customer of the ASP, the software functionality provided by the ASP should incorporate the best practices from all of its serviced customers.
- **Avoids concerns about undefined target enterprise architecture** – HUD is currently defining its target enterprise architecture for systems solutions. By leveraging an ASP approach, FHA can address the cited SAMS deficiencies while the enterprise architecture is being developed.

5.5 Data Reporting Solution Benefits

The benefits associated with implementing the Data Reporting solution are described in this subsection. The benefits have been organized into three categories: non-recurring, recurring, and non-quantifiable.

5.5.1 Non-Recurring Benefits

No quantifiable non-recurring benefits have been identified for the Data Reporting solution relative to the Status Quo. However, relative to the Customized solution, the initial investment costs of implementation are significantly reduced. As presented in table 5-4, the Data Reporting solution is $7.2 million less expensive to implement than the Customized solution.

Exhibit 5-4 Non-Recurring Benefits Relative to Data Reporting

Cost	Status Quo	Customized	COTS	ASP	Data Reporting
Total Year 1 Costs (FY2004)	$7,586,004	$28,605,818	$19,105,818	$16,933,943	$21,383,943
Savings (Cost) Relative to Status Quo	$13,797,940	($7,221,875)	$2,278,125	$4,450,000	-

5.5.2 Recurring Benefits

It is estimated that the Data Reporting solution would provide significant recurring benefits to FHA relative to the Status Quo and Customized solutions through a significant reduction in yearly operational costs. As presented in table 5-2 earlier, however, these recurring costs-savings are less than the savings for the COTS and ASP solutions. It is estimated that the COTS and ASP solutions would provide between $27-$28 million savings each in operational costs over a five year timeframe relative to the Status Quo. The Data Reporting solution would offer a savings of $23.7 million. The areas of savings provided by the Data Reporting are similar to those provided by the ASP solution. The most significant savings for the Data Reporting solution are described below.

- **Elimination of most system maintenance and upgrade costs** – Under this solution, the various contractors working with FHA would be required to develop their own software solution. However, FHA would still have to maintain a new data warehouse and its interfaces with the contractors.
- **Reduced hardware costs** – It is estimated that FHA would observe a $2.1 million reduction in its hardware operational costs compared to the Status Quo by migrating away from its current mainframe environment to this solution. In addition, the hardware costs for the Data Reporting solution are estimated to be approximately 50% less than the hardware costs for the COTS solution.
- **Reduced IV&V costs** – Over a five-year span, it is estimated that FHA would observe a $14.1 million reduction in the IV&V testing costs relative to the Status Quo. Additionally, these IV&V costs are estimated to be 50% less expensive than those for the COTS solution.
- **Elimination of most help desk costs** – The help desk functions would be reduced to providing help to contractors trying to interface with FHA. As a result, it is estimated that the help desk costs for this solution would be 47% less than the Status Quo solution.

5.5.3 Non-Quantifiable Benefits

The non-quantifiable benefits defined for the Data Reporting solution are described below.

- **Ability to shift management attention and personnel to core competencies** – Selecting this solution shifts the majority of the burden for software development, maintenance, and upgrades to the various contractors. This will allow FHA to shift significant resources to other mission-critical activities.
- **Ability to leverage industry standards and best practices** – Since the market will dictate the solutions, FHA and the market will benefit from industry best practices employed by the contractors.

6.0 COMPARATIVE COST/BENEFIT SUMMARY

6.0 COMPARATIVE COST/BENEFIT SUMMARY

This chapter summarizes the costs, the benefits, the NPV, the benefit to cost ratio, and the payback period for each solution.

6.1 Cost of Each Solution

This section summarizes the costs for each of the five solutions described in the previous sections. For each solution, subtotals are provided for the investment, recurring, and phase-out costs in addition to a grand total for the solution in both real and discounted dollars.

6.1.1 Summarized Cost of the Status Quo

Exhibit 6-1 below presents the summarized costs for maintaining the Status Quo at FHA with respect to SAMS. The total estimated cost for maintaining the Status Quo over five years is approximately $39.7 million. In current dollars, the total cost is approximately $34.3 million.

Exhibit 6-1 Status Quo Summary

Activity	FY2004	FY2005	FY2006	FY2007	FY2008	5 Year Total	NPV
Software	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Hardware	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Configuration	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Customization	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Interfaces	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Testing	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Data Conversion	$ -	$ -	$ -	$ -	$ -	$ -	$ -
BPR	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Training	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Change Management	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Project Management	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Implementation IV&V	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Investment Cost Total	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**

Recurring Costs

Activity	FY2004	FY2005	FY2006	FY2007	FY2008	5 Year Total	NPV
Software Maintenance/Upgrades	$ 2,549,504	$ 2,608,652	$ 2,669,173	$ 2,731,098	$ 2,794,460	$ 13,352,887	$ 11,520,837
System Operations & Upgrades	$ 230,902	$ 236,259	$ 241,740	$ 247,349	$ 253,087	$ 1,209,338	$ 1,043,414
Hardware & Communications	$ 500,000	$ 511,600	$ 523,469	$ 535,614	$ 548,040	$ 2,618,723	$ 2,259,427
Ongoing IV&V for Upgrades	$ 2,791,504	$ 2,856,267	$ 2,922,532	$ 2,990,335	$ 3,059,711	$ 14,620,348	$ 12,614,399
FHA Functional Users	$ 915,915	$ 937,164	$ 958,907	$ 981,153	$ 1,003,916	$ 4,797,055	$ 4,138,887
Help Desk	$ 598,179	$ 612,056	$ 626,256	$ 640,785	$ 655,651	$ 3,132,928	$ 2,703,082
Recurring Cost Total	**$ 7,586,004**	**$ 7,761,999**	**$ 7,942,077**	**$ 8,126,334**	**$ 8,314,865**	**$ 39,731,278**	**$ 34,280,045**

Phase-Out Costs

Activity	FY2004	FY2005	FY2006	FY2007	FY2008	5 Year Total	NPV
Legacy System Phase Out	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Phase-Out Cost Total	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**

	FY2004	FY2005	FY2006	FY2007	FY2008	5 Year Total	NPV
GRAND TOTAL	**$ 7,586,004**	**$ 7,761,999**	**$ 7,942,077**	**$ 8,126,334**	**$ 8,314,865**	**$ 39,731,278**	**$ 34,280,045**

6.1.2 Summarized Cost of the Customized Build Solution

Exhibit 6-2 below presents the summarized costs for replacing SAMS with a new custom-built system. The total cost for this solution is estimated to be approximately $55.9 million. In current dollars, the cost is approximately $50.4 million.

Exhibit 6-2 Customized Summary

Investment Costs

Activity	FY2004	FY2005	FY2006	FY2007	FY2008	5 Year Total	NPV
Software	$ 437,500	$ -	$ -	$ -	$ -	$ 437,500	$ 416,476
Hardware	$ 500,000	$ -	$ -	$ -	$ -	$ 500,000	$ 475,973
Configuration	$ 1,312,500	$ -	$ -	$ -	$ -	$ 1,312,500	$ 1,249,429
Customization	$ 10,500,000	$ -	$ -	$ -	$ -	$ 10,500,000	$ 9,995,431
Interfaces	$ 2,250,000	$ -	$ -	$ -	$ -	$ 2,250,000	$ 2,141,878
Testing	$ 1,500,000	$ -	$ -	$ -	$ -	$ 1,500,000	$ 1,427,919
Data Conversion	$ 750,000	$ -	$ -	$ -	$ -	$ 750,000	$ 713,959
BPR	$ 750,000	$ -	$ -	$ -	$ -	$ 750,000	$ 713,959
Training	$ 350,000	$ -	$ -	$ -	$ -	$ 350,000	$ 333,181
Change Management	$ 200,000	$ -	$ -	$ -	$ -	$ 200,000	$ 190,389
Project Management	$ 1,200,000	$ -	$ -	$ -	$ -	$ 1,200,000	$ 1,142,335
Implementation IV&V	$ 1,050,000	$ -	$ -	$ -	$ -	$ 1,050,000	$ 999,543
Investment Cost Total	**$ 20,800,000**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 20,800,000**	**$ 19,800,472**

Recurring Costs

Activity	FY2004	FY2005	FY2006	FY2007	FY2008	5 Year Total	NPV
Software Maintenance/Upgrades	$ -	$ 2,608,652	$ 2,669,173	$ 2,048,324	$ 1,676,676	$ 9,002,825	$ 7,659,339
System Operations & Upgrades	$ -	$ 236,259	$ 241,740	$ 247,349	$ 253,087	$ 978,436	$ 823,607
Hardware & Communications	$ 62,500	$ 250,000	$ 255,800	$ 261,735	$ 267,807	$ 1,097,841	$ 931,005
Ongoing IV&V for Upgrades	$ -	$ 2,856,267	$ 2,922,532	$ 2,242,751	$ 1,835,826	$ 9,857,376	$ 8,386,366
FHA Functional Users	$ 915,915	$ 937,164	$ 958,907	$ 981,153	$ 1,003,916	$ 4,797,055	$ 4,138,887
Help Desk	$ -	$ 612,056	$ 626,256	$ 640,785	$ 655,651	$ 2,534,749	$ 2,133,648
Recurring Cost Total	**$ 978,415**	**$ 7,500,399**	**$ 7,674,408**	**$ 6,422,096**	**$ 5,692,963**	**$ 28,268,282**	**$ 24,072,853**

Phase-Out Costs

Activity	FY2004	FY2005	FY2006	FY2007	FY2008	5 Year Total	NPV
Legacy System Phase Out	$ 6,827,403	$ -	$ -	$ -	$ -	$ 6,827,403	$ 6,499,318
Phase-Out Cost Total	**$ 6,827,403**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 6,827,403**	**$ 6,499,318**

	FY2004	FY2005	FY2006	FY2007	FY2008	5 Year Total	NPV
GRAND TOTAL	**$ 28,605,818**	**$ 7,500,399**	**$ 7,674,408**	**$ 6,422,096**	**$ 5,692,963**	**$ 55,895,686**	**$ 50,372,643**

6.1.3 Summarized Cost of the COTS Solution

Exhibit 6-3 below presents the summarized costs for replacing SAMS with a COTS solution. The total cost for this solution is estimated to be approximately $29.8 million. In current dollars, the cost is approximately $27.2 million.

Exhibit 6-3 COTS Summary

Investment Costs

Activity	FY2004	FY2005	FY2006	FY2007	FY2008	5 Year Total	NPV
Software	$ 1,750,000	$ -	$ -	$ -	$ -	$ 1,750,000	$ 1,665,905
Hardware	$ 500,000	$ -	$ -	$ -	$ -	$ 500,000	$ 475,973
Configuration	$ 2,625,000	$ -	$ -	$ -	$ -	$ 2,625,000	$ 2,498,858
Customization	$ 875,000	$ -	$ -	$ -	$ -	$ 875,000	$ 832,953
Interfaces	$ 2,250,000	$ -	$ -	$ -	$ -	$ 2,250,000	$ 2,141,878
Testing	$ 500,000	$ -	$ -	$ -	$ -	$ 500,000	$ 475,973
Data Conversion	$ 750,000	$ -	$ -	$ -	$ -	$ 750,000	$ 713,959
BPR	$ 750,000	$ -	$ -	$ -	$ -	$ 750,000	$ 713,959
Training	$ 350,000	$ -	$ -	$ -	$ -	$ 350,000	$ 333,181
Change Management	$ 200,000	$ -	$ -	$ -	$ -	$ 200,000	$ 190,389
Project Management	$ 400,000	$ -	$ -	$ -	$ -	$ 400,000	$ 380,778
Implementation IV&V	$ 350,000	$ -	$ -	$ -	$ -	$ 350,000	$ 333,181
Investment Cost Total	**$ 11,300,000**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 11,300,000**	**$ 10,756,987**

Recurring Costs

Activity	FY2004	FY2005	FY2006	FY2007	FY2008	5 Year Total	NPV
Software Maintenance/Upgrades	$ -	$ 500,000	$ 511,600	$ 523,469	$ 535,614	$ 2,070,683	$ 1,743,016
System Operations & Upgrades	$ -	$ 300,000	$ 306,960	$ 314,081	$ 321,368	$ 1,242,410	$ 1,045,810
Hardware & Communications	$ 62,500	$ 250,000	$ 255,800	$ 261,735	$ 267,807	$ 1,097,841	$ 931,005
Ongoing IV&V for Upgrades	$ -	$ 250,000	$ 255,800	$ 261,735	$ 267,807	$ 1,035,341	$ 871,508
FHA Functional Users	$ 915,915	$ 937,164	$ 958,907	$ 981,153	$ 1,003,916	$ 4,797,055	$ 4,138,887
Help Desk	$ -	$ 350,000	$ 358,120	$ 366,428	$ 374,930	$ 1,449,478	$ 1,220,111
Recurring Cost Total	**$ 978,415**	**$ 2,587,164**	**$ 2,647,187**	**$ 2,708,601**	**$ 2,771,441**	**$ 11,692,808**	**$ 9,950,337**

Phase-Out Costs

Activity	FY2004	FY2005	FY2006	FY2007	FY2008	5 Year Total	NPV
Legacy System Phase Out	$ 6,827,403	$ -	$ -	$ -	$ -	$ 6,827,403	$ 6,499,318
Phase-Out Cost Total	**$ 6,827,403**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 6,827,403**	**$ 6,499,318**

	FY2004	FY2005	FY2006	FY2007	FY2008	5 Year Total	NPV
GRAND TOTAL	**$ 19,105,818**	**$ 2,587,164**	**$ 2,647,187**	**$ 2,708,601**	**$ 2,771,441**	**$ 29,820,211**	**$ 27,206,642**

6.1.4 Summarized Cost of the ASP Solution

Exhibit 6-4 below presents the summarized costs for replacing SAMS with an ASP solution. The total cost for this solution is estimated to be approximately $28.4 million. In current dollars, the cost is approximately $25.8 million.

Exhibit 6-4 ASP Summary

Investment Costs

Activity	FY2004	FY2005	FY2006	FY2007	FY2008	5 Year Total	NPV
Software	$ 437,500	$ -	$ -	$ -	$ -	$ 437,500	$ 416,476
Hardware	$ 250,000	$ -	$ -	$ -	$ -	$ 250,000	$ 237,986
Configuration	$ 1,312,500	$ -	$ -	$ -	$ -	$ 1,312,500	$ 1,249,429
Customization	$ 437,500	$ -	$ -	$ -	$ -	$ 437,500	$ 416,476
Interfaces	$ 3,375,000	$ -	$ -	$ -	$ -	$ 3,375,000	$ 3,212,817
Testing	$ 375,000	$ -	$ -	$ -	$ -	$ 375,000	$ 356,980
Data Conversion	$ 750,000	$ -	$ -	$ -	$ -	$ 750,000	$ 713,959
BPR	$ 937,500	$ -	$ -	$ -	$ -	$ 937,500	$ 892,449
Training	$ 350,000	$ -	$ -	$ -	$ -	$ 350,000	$ 333,181
Change Management	$ 200,000	$ -	$ -	$ -	$ -	$ 200,000	$ 190,389
Project Management	$ 400,000	$ -	$ -	$ -	$ -	$ 400,000	$ 380,778
Implementation IV&V	$ 350,000	$ -	$ -	$ -	$ -	$ 350,000	$ 333,181
Investment Cost Total	**$ 9,175,000**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 9,175,000**	**$ 8,734,103**

Recurring Costs

Activity	FY2004	FY2005	FY2006	FY2007	FY2008	5 Year Total	NPV
Software Maintenance/Upgrades	$ -	$ 125,000	$ 127,900	$ 130,867	$ 133,903	$ 517,671	$ 435,754
System Operations & Upgrades	$ -	$ 1,500,000	$ 1,534,800	$ 1,570,407	$ 1,606,841	$ 6,212,048	$ 5,229,049
Hardware & Communications	$ 15,625	$ 62,500	$ 63,950	$ 65,434	$ 66,952	$ 274,460	$ 232,751
Ongoing IV&V for Upgrades	$ -	$ 62,500	$ 63,950	$ 65,434	$ 66,952	$ 258,835	$ 217,877
FHA Functional Users	$ 915,915	$ 937,164	$ 958,907	$ 981,153	$ 1,003,916	$ 4,797,055	$ 4,138,887
Help Desk	$ -	$ 87,500	$ 89,530	$ 91,607	$ 93,732	$ 362,369	$ 305,028
Recurring Cost Total	**$ 931,540**	**$ 2,774,664**	**$ 2,839,037**	**$ 2,904,902**	**$ 2,972,296**	**$ 12,422,439**	**$ 10,559,346**

Phase-Out Costs

Activity	FY2004	FY2005	FY2006	FY2007	FY2008	5 Year Total	NPV
Legacy System Phase Out	$ 6,827,403	$ -	$ -	$ -	$ -	$ 6,827,403	$ 6,499,318
Phase-Out Cost Total	**$ 6,827,403**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 6,827,403**	**$ 6,499,318**

	FY2004	FY2005	FY2006	FY2007	FY2008	5 Year Total	NPV
GRAND TOTAL	**$ 16,933,943**	**$ 2,774,664**	**$ 2,839,037**	**$ 2,904,902**	**$ 2,972,296**	**$ 28,424,842**	**$ 25,792,766**

6.1.5 Summarized Cost of Data Reporting Solution

Exhibit 6-5 below presents the summarized costs for replacing SAMS with the Data Reporting solution. The total cost for this solution is estimated to be approximately $36.4 million. In current dollars, the cost is approximately $33.0 million.

Exhibit 6-5 Data Reporting Summary

Investment Costs

Activity	FY2004	FY2005	FY2006	FY2007	FY2008	5 Year Total	NPV
Software	$ 875,000	$ -	$ -	$ -	$ -	$ 875,000	$ 832,953
Hardware	$ 500,000	$ -	$ -	$ -	$ -	$ 500,000	$ 475,973
Configuration	$ 1,312,500	$ -	$ -	$ -	$ -	$ 1,312,500	$ 1,249,429
Customization	$ 437,500	$ -	$ -	$ -	$ -	$ 437,500	$ 416,476
Interfaces	$ 5,250,000	$ -	$ -	$ -	$ -	$ 5,250,000	$ 4,997,715
Testing	$ 1,125,000	$ -	$ -	$ -	$ -	$ 1,125,000	$ 1,070,939
Data Conversion	$ 750,000	$ -	$ -	$ -	$ -	$ 750,000	$ 713,959
BPR	$ 1,875,000	$ -	$ -	$ -	$ -	$ 1,875,000	$ 1,784,898
Training	$ 350,000	$ -	$ -	$ -	$ -	$ 350,000	$ 333,181
Change Management	$ 400,000	$ -	$ -	$ -	$ -	$ 400,000	$ 380,778
Project Management	$ 400,000	$ -	$ -	$ -	$ -	$ 400,000	$ 380,778
Implementation IV&V	$ 350,000	$ -	$ -	$ -	$ -	$ 350,000	$ 333,181
Investment Cost Total	**$ 13,625,000**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 13,625,000**	**$ 12,970,261**

Recurring Costs

Activity	FY2004	FY2005	FY2006	FY2007	FY2008	5 Year Total	NPV
Software Maintenance/Upgrades	$ -	$ 250,000	$ 255,800	$ 261,735	$ 267,807	$ 1,035,341	$ 871,508
System Operations & Upgrades	$ -	$ 1,800,000	$ 1,841,760	$ 1,884,489	$ 1,928,209	$ 7,454,458	$ 6,274,859
Hardware & Communications	$ 15,625	$ 125,000	$ 127,900	$ 130,867	$ 133,903	$ 533,296	$ 450,628
Ongoing IV&V for Upgrades	$ -	$ 125,000	$ 127,900	$ 130,867	$ 133,903	$ 517,671	$ 435,754
FHA Functional Users	$ 915,915	$ 937,164	$ 958,907	$ 981,153	$ 1,003,916	$ 4,797,055	$ 4,138,887
Help Desk	$ -	$ 400,000	$ 409,280	$ 418,775	$ 428,491	$ 1,656,546	$ 1,394,413
Recurring Cost Total	**$ 931,540**	**$ 3,637,164**	**$ 3,721,547**	**$ 3,807,886**	**$ 3,896,229**	**$ 15,994,367**	**$ 13,566,049**

Phase-Out Costs

Activity	FY2004	FY2005	FY2006	FY2007	FY2008	5 Year Total	NPV
Legacy System Phase Out	$ 6,827,403	$ -	$ -	$ -	$ -	$ 6,827,403	$ 6,499,318
Phase-Out Cost Total	**$ 6,827,403**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 6,827,403**	**$ 6,499,318**

	FY2004	FY2005	FY2006	FY2007	FY2008	5 Year Total	NPV
GRAND TOTAL	**$ 21,383,943**	**$ 3,637,164**	**$ 3,721,547**	**$ 3,807,886**	**$ 3,896,229**	**$ 36,446,770**	**$ 33,035,628**

6.2 Benefits

The benefits for each solution are derived using the following formula:

Total Benefits = Total Status Quo Costs – Total Solution Costs

Exhibit 6-6 summarizes the expected total benefits (costs) of each solution relative to the Status Quo solution.

Exhibit 6-6 Summary of Total Benefits

Cost	Status Quo	Customized	COTS	ASP	Data Reporting
Total Year 1 Costs (FY2004)	$39,731,278	$55,895,686	$29,820,211	$28,424,842	$36,446,770
Savings (Cost) Relative to Status Quo	-	($16,164,407)	$9,911,067	$11,306,436	$3,284,508

6.3 Net Present Value

A summary of the NPV amounts presented in exhibits 6-1 through 6-5 is presented in exhibit 6-7.

Exhibit 6-7 NPV Summary

Alternative Description	NPV
Status Quo	$34,280,045
Customized	$50,372,643
COTS	$27,206,642
ASP	$25,792,766
Data Reporting	$33,035,628

6.4 Benefit/Cost Ratio

The benefit/cost ratio is calculated by dividing the total present value of the benefits by the present value of the total costs for each solution. As the benefits are calculated relative to the Status Quo, the benefit/cost ratio is not a meaningful calculation for the Status Quo solution. Exhibit 6-8 below presents the benefit/cost ratio for the four new system solutions:

Exhibit 6-8 Benefit/Cost Ratio Relative to Status Quo

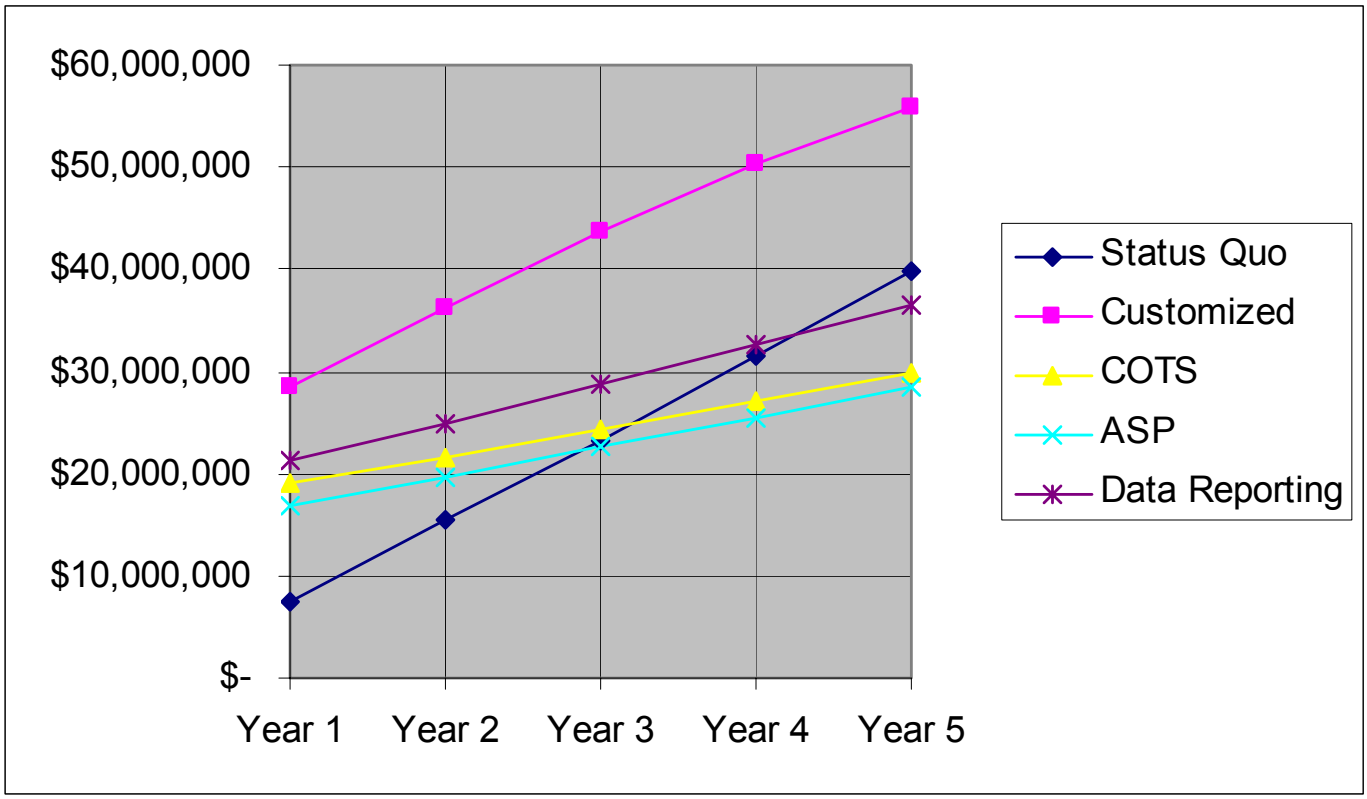
Alternative Description	Benefits	Costs	Benefit/Cost Ratio
Customized	($16,164,407)	$55,895,686	-28.9%
COTS	$9,911,067	$29,820,211	33.2%
ASP	$11,306,436	$28,424,842	39.8%
Data Reporting	$3,284,508	$36,446,770	9.0%

The COTS, ASP, and Data Reporting solutions each have a positive ratio indicating a positive return on investment over five years relative to the Status Quo. The ASP solution has the highest benefit/cost ratio at 39.8 percent. The Customized solution is expected to have a negative 28.9 percent return relative to the Status Quo over the same time span.

6.5 Payback Period

As can be seen in exhibit 6-9 below, the expected payback period for the COTS and ASP solutions is approximately 3 years for each. For the Data Reporting solution, the expected payback period is 4 years. The Customized development solution does not provide a positive payback period within the next five years.

Exhibit 6-9 Payback Period



APPENDIX A ALTERNATIVE COST ESTIMATES

Alternative Cost Estimate for Customized Solution

One of the primary assumptions for the Customized solution presented in the main text is that FHA can develop a complete replacement of SAMS from scratch in a single year. This assumption was made in order to facilitate comparison of the different system options using a standard implementation timeframe. However, given the complexity and difficulty of large custom-build software projects, it is unlikely that this assumption can be realized. This cost estimate reflects an alternative presentation of the implementation and recurring costs for the Customized solution that reflects an extended implementation period for the new system and an extended phase-out period for SAMS.

Under this "Alternative" Customized scenario, it is assumed that it would take FHA at least two years to implement a customized system instead of the baseline assumption of one year. The Alternative Customized solution will also require FHA to continue to operate SAMS during the first year in a manner consistent with that described in the Status Quo. SAMS would then be phased out in year two.

Exhibit A-1 below presents the summarized costs for replacing SAMS with the Alternative Customized solution. The total cost for this solution is estimated to be approximately $60.6 million. In current dollars, the cost is approximately $54.3 million.

Exhibit A-1 Alternative Customized Summary

Investment Costs

Activity	FY2004	FY2005	FY2006	FY2007	FY2008	5 Year Total	NPV
Software	$ 262,500	$ 268,590	$ -	$ -	$ -	$ 531,090	$ 493,282
Hardware	$ 300,000	$ 306,960	$ -	$ -	$ -	$ 606,960	$ 563,751
Configuration	$ 787,500	$ 805,770	$ -	$ -	$ -	$ 1,593,270	$ 1,479,847
Customization	$ 6,300,000	$ 6,446,160	$ -	$ -	$ -	$ 12,746,160	$ 11,838,774
Interfaces	$ 1,350,000	$ 1,381,320	$ -	$ -	$ -	$ 2,731,320	$ 2,536,880
Testing	$ 900,000	$ 920,880	$ -	$ -	$ -	$ 1,820,880	$ 1,691,253
Data Conversion	$ 450,000	$ 460,440	$ -	$ -	$ -	$ 910,440	$ 845,627
BPR	$ 450,000	$ 460,440	$ -	$ -	$ -	$ 910,440	$ 845,627
Training	$ 210,000	$ 214,872	$ -	$ -	$ -	$ 424,872	$ 394,626
Change Management	$ 120,000	$ 122,784	$ -	$ -	$ -	$ 242,784	$ 225,500
Project Management	$ 720,000	$ 736,704	$ -	$ -	$ -	$ 1,456,704	$ 1,353,003
Implementation IV&V	$ 630,000	$ 644,616	$ -	$ -	$ -	$ 1,274,616	$ 1,183,877
Investment Cost Total	**$ 12,480,000**	**$ 12,769,536**	**$ -**	**$ -**	**$ -**	**$ 25,249,536**	**$ 23,452,047**

Recurring Costs

Activity	FY2004	FY2005	FY2006	FY2007	FY2008	5 Year Total	NPV
Software Maintenance/Upgrades	$ 2,549,504	$ -	$ 2,669,173	$ 2,048,324	$ 1,676,676	$ 8,943,676	$ 7,722,366
System Operations & Upgrades	$ 230,902	$ -	$ 241,740	$ 247,349	$ 253,087	$ 973,079	$ 829,315
Hardware & Communications	$ 500,000	$ 63,950	$ 255,800	$ 261,735	$ 267,807	$ 1,349,291	$ 1,178,882
Ongoing IV&V for Upgrades	$ 2,791,504	$ -	$ 2,922,532	$ 2,242,751	$ 1,835,826	$ 9,792,613	$ 8,455,376
FHA Functional Users	$ 915,915	$ 937,164	$ 958,907	$ 981,153	$ 1,003,916	$ 4,797,055	$ 4,138,887
Help Desk	$ 598,179	$ -	$ 626,256	$ 640,785	$ 655,651	$ 2,520,871	$ 2,148,436
Recurring Cost Total	**$ 7,586,004**	**$ 1,001,114**	**$ 7,674,408**	**$ 6,422,096**	**$ 5,692,963**	**$ 28,376,586**	**$ 24,473,262**

Phase-Out Costs

Activity	FY2004	FY2005	FY2006	FY2007	FY2008	5 Year Total	NPV
Legacy System Phase Out	$ -	$ 6,985,799	$ -	$ -	$ -	$ 6,985,799	$ 6,330,536
Phase-Out Cost Total	**$ -**	**$ 6,985,799**	**$ -**	**$ -**	**$ -**	**$ 6,985,799**	**$ 6,330,536**

	FY2004	FY2005	FY2006	FY2007	FY2008	5 Year Total	NPV
GRAND TOTAL	**$ 20,066,004**	**$ 20,756,449**	**$ 7,674,408**	**$ 6,422,096**	**$ 5,692,963**	**$ 60,611,921**	**$ 54,255,845**

Alternative Cost Estimate for Data Reporting Solution

One of the primary assumptions for the Data Reporting solution presented in the main text is that the M&M contractors can assume all of the requisite SAMS functionality and that interfaces to FHA's data warehouse can be built within the first year. This assumption was made in order to facilitate comparison of the different system options using a standard implementation timeframe. However, it is unlikely that this assumption can be realized, given the changes to be placed on the contractors. This cost estimate reflects an alternative presentation of the implementation and recurring costs for the Data Reporting solution that reflects an initial upfront time period for FHA to prepare the industry for the system changes and an extended phase-out period for SAMS.

Under this "Alternative" Data Reporting scenario, it is assumed that FHA will work with industry partners for at least two years prior to system implementation to develop the necessary environment to allow for this paradigm shift. For example, FHA will need to work with industry partners to develop data reporting standards, software companies to communicate changes for future reporting requirements, and M&M contractors to communicate future program changes. FHA may also need to work with the Office of General Council to post program changes on the federal register and to respond to comments. This option assumes that FHA will continue to use SAMS for two years prior to phase-out.

Exhibit A-2 below presents the summarized costs for replacing SAMS with the Alternative Data Reporting solution. The total cost for this solution is estimated to be approximately $48.7 million. In current dollars, the cost is approximately $42.7 million.

Exhibit A-2 Alternative Data Reporting Solution

Investment Costs

Activity	FY2004	FY2005	FY2006	FY2007	FY2008	5 Year Total	NPV
Software	$ -	$ -	$ 916,071	$ -	$ -	$ 916,071	$ 790,252
Hardware	$ -	$ -	$ 523,469	$ -	$ -	$ 523,469	$ 451,573
Configuration	$ -	$ -	$ 1,374,106	$ -	$ -	$ 1,374,106	$ 1,185,378
Customization	$ -	$ -	$ 458,035	$ -	$ -	$ 458,035	$ 395,126
Interfaces	$ -	$ -	$ 5,496,426	$ -	$ -	$ 5,496,426	$ 4,741,514
Testing	$ -	$ -	$ 1,177,806	$ -	$ -	$ 1,177,806	$ 1,016,039
Data Conversion	$ -	$ -	$ 785,204	$ -	$ -	$ 785,204	$ 677,359
BPR	$ 1,000,000	$ 1,023,200	$ 1,963,009	$ -	$ -	$ 3,986,209	$ 3,572,568
Training	$ -	$ -	$ 366,428	$ -	$ -	$ 366,428	$ 316,101
Change Management	$ 200,000	$ 204,640	$ 418,775	$ -	$ -	$ 823,415	$ 737,092
Project Management	$ 400,000	$ 409,280	$ 418,775	$ -	$ -	$ 1,228,055	$ 1,112,926
Implementation IV&V	$ -	$ -	$ 366,428	$ -	$ -	$ 366,428	$ 316,101
Investment Cost Total	**$ 1,600,000**	**$ 1,637,120**	**$ 14,264,534**	**$ -**	**$ -**	**$ 17,501,654**	**$ 15,312,029**

Recurring Costs

Activity	FY2004	FY2005	FY2006	FY2007	FY2008	5 Year Total	NPV
Software Maintenance/Upgrades	$ 2,549,504	$ 2,608,652	$ -	$ 261,735	$ 267,807	$ 5,687,698	$ 5,215,243
System Operations & Upgrades	$ 230,902	$ 236,259	$ -	$ 1,884,489	$ 1,928,209	$ 4,279,859	$ 3,488,800
Hardware & Communications	$ 500,000	$ 511,600	$ 16,358	$ 130,867	$ 133,903	$ 1,292,729	$ 1,165,842
Ongoing IV&V for Upgrades	$ 2,791,504	$ 2,856,267	$ -	$ 130,867	$ 133,903	$ 5,912,541	$ 5,457,857
FHA Functional Users	$ 915,915	$ 937,164	$ 958,907	$ 981,153	$ 1,003,916	$ 4,797,055	$ 4,138,887
Help Desk	$ 598,179	$ 612,056	$ -	$ 418,775	$ 428,491	$ 2,057,501	$ 1,802,945
Recurring Cost Total	**$ 7,586,004**	**$ 7,761,999**	**$ 975,265**	**$ 3,807,886**	**$ 3,896,229**	**$ 24,027,384**	**$ 21,269,575**

Phase-Out Costs

Activity	FY2004	FY2005	FY2006	FY2007	FY2008	5 Year Total	NPV
Legacy System Phase Out	$ -	$ -	$ 7,147,870	$ -	$ -	$ 7,147,870	$ 6,166,138
Phase-Out Cost Total	**$ -**	**$ -**	**$ 7,147,870**	**$ -**	**$ -**	**$ 7,147,870**	**$ 6,166,138**

	FY2004	FY2005	FY2006	FY2007	FY2008	5 Year Total	NPV
GRAND TOTAL	**$ 9,186,004**	**$ 9,399,119**	**$ 22,387,668**	**$ 3,807,886**	**$ 3,896,229**	**$ 48,676,907**	**$ 42,747,743**